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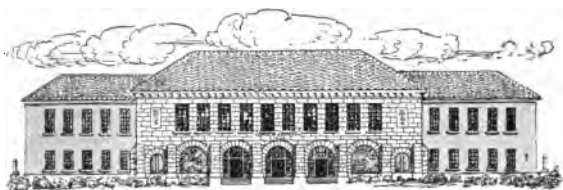
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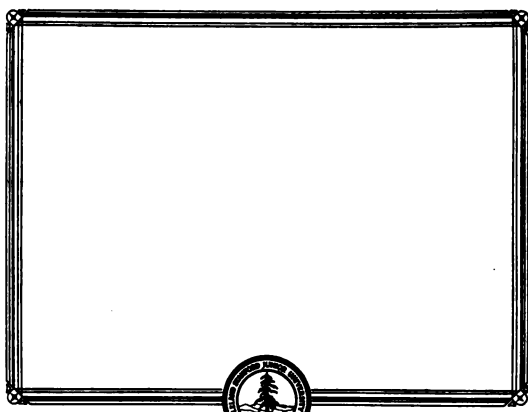
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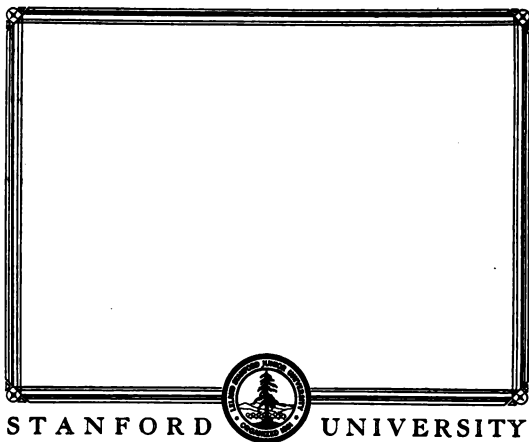


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THE
PRIMARY TEACHER,

A Monthly Magazine,

DEVOTED TO THE

Interests of Primary Instruction in America.

WILLIAM E. SHELDON, EDITOR.

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SEPTEMBER, 1880 - JUNE, 1881.

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SUPPLEMENTARY READING FOR PRIMARY SCHOOLS.

The Publishers will have ready in September,

Two New Books & Supplementary Readers,

— BY —

COL. F. W. PARKER,

Supervisor of Public Schools, Boston, Mass.

LOUIS H. MARVEL, A.M.,

Superintendent of Schools, Gloucester, Mass.

The authors have prepared these books in response to repeated demands of teachers, under their supervision, for more reading suitable for children in primary schools. Hundreds of lessons have been written, and tested in the school-room. From the best of those lessons, enough have been selected to make two books of one hundred and twenty pages each.

As no space is devoted to drill in elocution, to lists of words for spelling, or to the presentation of methods of instruction,—provision for all of which is made in the regular text-books prescribed for use in schools,—the amount of reading-matter in each of these books will be nearly as much as appears in 250 pages of the common text-books. This special feature adapts the books peculiarly for use as supplementary readers in connection with any good **FIRST READER** which may be employed. Since there will be no useless repetition of the drill already acquired, and no conflict with the principles and methods advocated by the authorities whom the teachers are expected to follow,—simply a considerable amount of new reading-matter, carefully graded, and adapted to the capacity of young children,—these books are enabled to furnish nearly three times as many pages of reading-lessons as any First Reader in general use. Persons who purchase a First Reader of some other series to supplement that already in use, pay for a repetition of the drill in spelling, etc., which, although necessary in the text-book, is worthless in the supplement.

Orders have been received for these books long in advance of publication. Many leading school authorities having examined advanced sheets of the work, have heartily endorsed the plan, and have expressed themselves highly pleased with what they have observed of its execution. The demands already made will nearly exhaust the first (September) edition, and parties wishing to order for the fall term should send their favors at the earliest practicable opportunity.

On receipt of **20 cents** copies of either book will be sent any address, for examination, by the publishers,

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CHILDREN LEARN TO READ BY READING.

THE
PRIMARY TEACHER.

VOL. IV.

SEPTEMBER, 1880.

NO. 1.

NATURAL HISTORY IN PRIMARY SCHOOLS.

BY J. M. ARMS.

X.

The lobster introduces us to the spider, and the spider, in its turn, acquaints us with the grasshopper, the butterfly, and their host of insect relatives. If now, we call the butterfly "a land lobster," as Miss Stevenson has done in her "Boys and Girls in Biology," then, as the spider claims even closer kinship with the crustacean, we may call it the little lobster-spinner.

Interesting as are the homologies between these animals, we cannot dwell upon them, for we are attracted now by the laughing eyes of little children, as they look at the solemn expression of a grasshopper's face, and by the eager "whats" and "whys" that are waiting on rosy lips. The grasshoppers, collected during the summer, are fastened by pins to small pieces of cork, that they may be more easily handled. Guided by the teacher, the children first observe that the body is divided into three distinct portions, instead of two, as in the lobster and spider; and that the forward and additional part is a head. No longer carried on a creeping-disc, or united with a chest-region or thorax, this head is seen to move freely backward, forward, and sideways. The little ones find the great eyes and long feelers, the upper lip, and the chewing-organs that remind them of the lobster's, and lastly, the two pairs of little jaws or maxillæ. Following the head come the three rings of the thorax, and the ten rings of the abdomen, the ninth and tenth rings being fused together. The children think that the first ring of the thorax looks like a little cape thrown round the grasshopper's neck, "to keep it warm," while they discover that each of the three rings bears a pair of walking-legs, with hooks at their ends. Perhaps some child wonders why the grasshopper should have so few feet, after having found all the swimming-feet, walking-feet, and jaw-feet of the lobster. He does not

know yet, though he will "learn the fact" for himself some day, that the grasshopper has learned the art of balancing itself upon a smaller basis. Therefore, not needing many supports, it does not have them, since no species retains for any length of time the organs that it does not use.

The children notice that the grasshopper has the same number of walking-legs and mouth-parts on one side as on the other, and that its feelers and eyes are placed one on each side. If they are keen-sighted they also observe on each side of the abdomen a row of openings, one in each ring, which, in a living grasshopper, are seen to dilate and contract as the animal breathes. These openings lead into branched tubes in the interior, which are the grasshopper's breathing-organs. Connected with the tubes there are bags which the insect, when alive, could fill with air. But why did the grasshopper need air-bags? Long before this the children have seen the two pairs of delicate wings borne on the second and third rings of the thorax, and, doubtless, in imagination, many will at once picture the living grasshopper, as with wings expanded, and air-sacs filled and buoying it upward, it flew through the air.

So much, and more, is our typical insect, the grasshopper. It is the representative of the highest class of invertebrates, and as such is one of the best illustrations to the teacher of the law of cephalization. It realizes in its structure the bi-lateral symmetry which was prophesied by the star-fish, while it suggests the possibility of that perfect equilibrium of the body upon the smallest basis, which becomes a marked characteristic of the higher vertebrates. With the grasshopper all other insects may be compared.

The seven orders into which the class is divided were represented at the second lecture on insects in the Science Course, by a box of ten specimens, prepared for each of the five hundred teachers with great care and labor by Mr. Henshaw, assistant in the Museum of the Boston Society of Natural History. In comparing the dragon-fly with the grasshopper, the children will find that the lace-like wings of the former betray the order to which it belongs. The bug will be seen to have the chewing-organs and little jaws of the grasshopper modified to form a sucking-tube, containing four bristle-like piercers, which the insect uses in obtaining the fluids of animals. The beetle is a meat-eater, and therefore its chewing-organs will be found much stronger than those of its vegetarian relative, the grasshopper; while in place of the first pair of wings there will be the stiff and often brilliantly colored wing-covers. The fly will be known by its poverty, for it only possesses one pair of wings; the butterfly by its long, coiled tube, fitted for sucking the nectar of flowers. Finally, the bee, the most highly organized of insects,

will be seen to have both chewing-organs and sucking-tube, and it is therefore a little meat-eater as well as a honey-sucker.

We long to dwell upon the perfect adaptation of organs to their various kinds of work, which is nowhere more beautifully illustrated than in insects; upon the wonderful transformations that give us beetles and butterflies in place of grubs and caterpillars; upon the surpassing beauty which may be seen in the feathery antennæ of a moth, or the brilliant scales of a butterfly's wing. "It is impossible," said Professor Hyatt, "to do justice to the class of insects in two lectures;"—surely, in two pages naught but sad injustice has been done to both lectures and insects.

We can only trust that the wrong will be righted by teachers, and now, that the summer days have come again, that the lessons in the school-rooms will be supplemented by walks in the green fields where insects are at home; where the grasshopper takes its flying leaps and desperate plunges among the sharp grass-blades, and the butterfly lays its eggs on the leaves which its children, the caterpillars, love best; where the dry twig changes to a lively walking-stick, and the harvest-fly sits by its own outgrown and cast-off skin; where, in brief, bees and crickets, little people, big people, each and all, are happy and free, because they cannot help being, because "'tis the natural way of living."



ON SPELLING.

BY MRS. R. R. BIRD.

There are natural mathematicians, natural philosophers, natural linguists, natural orators, and—natural spellers. As natural mathematicians can arrive at results by mental processes so rapid that they seem almost to dive at one plunge to the depth of a mathematical problem, or soar upward, as if on wings, to the height of a mental calculation; while others, less gifted, have to climb by slow and difficult steps to reach the same end; or perhaps, after all, lose their footing, or drop down from sheer exhaustion, unable to reach the goal at all; so with the natural spellers,—whether they have been taught by the most approved or disapproved methods, words which they have once seen have only to be named, and immediately up they spring before the eyes of their minds, with all their letters arranged in their proper order. They only have to see a word once, and they know it forever.

Not so with the poor spellers, those unfortunates who are less highly gifted with the faculty of recalling word pictures. They may struggle through column after column, in the spelling-book, of words they have heard and those they have never heard, carefully classified according to the short and long sounds of the vowels, the hard and soft sounds of the consonants, silent letters, digraphs and diphthongs, sounded and unsounded; etc.. They may, indeed, commit them to memory after much study; but, when lost from sight for a few hours, they are lost from memory as well. If they read much, — which is doubtful, for it is observed that great readers are ready spellers, they seem to behold the words; but so soon as the book is closed, — they forget what manner of words they were. In spite of all their opportunities, if they are called upon to write, they are puzzled to tell whether *e* follows *i*, or *i* follows *e* in *believe* and *receive*; whether *ible* or *able* shall be at the end of *affable* and *infallible*; or whether *diphtheria* is spelled with an *i* or a *y*.

And there are different grades of spellers, from the poorest to the best.

If only learning to spell in English were as simple a process as it is in most other languages, where the scholars have but to acquaint themselves with the few simple powers of the letters and they have the whole dictionary at the end of their pens and tongues! But alas for the students who have to contend with the inconsistencies of the English alphabet, so deficient and yet so redundant, requiring forty different sounds to be represented by its twenty-six letters, and yet some of these letters, like *c*, *q*, and *x*, could easily be dispensed with!

We might almost wish that the leaders of the Spelling Reform Association would immediately push forward their movements, and reduce the alphabet to its lowest terms, leaving us a perfect alphabet, each letter representing a simple sound, and no sound requiring more than one letter! But although it does seem more consistent with common-sense to divest words of their superfluous appendages, and to spell them according to their sounds; and although thus to make more simple the garbs in which our ideas are clothed, would do much toward making the path easy to the acquirement of our language for future generations, yet who would not feel a pang at seeing those old garments, grown sacred by age and association, rent apart. — in some cases shortened and made smaller, in others patched and pieced out and generally made over, stripping the words of their poetry and truth, and in many cases depriving them of their very life? But so long as the English language remains as it is, so long as *ough* suggests the several sounds *uff*, *off*, *ow*, *ao*, and *o*, some method must be devised by which poor spellers can improve, the good become better, and the better arrive at the proficiency of the best.

Now we know that it is the faculty of *recalling* the word-picture, aided by remembering the word-sound, which makes the good speller. We sometimes place too much reliance upon oral spelling. We teach spelling as if we were preparing our children for a grand spelling-match, forgetting that the main use of a knowledge of spelling is to aid us in communicating thought in *writing*. Therefore words must be *written*, that their *looks* may impress themselves upon the mind. Yet oral spelling,—the analyzing of the word-sound,—should not be neglected. It has its place, and an important one. There are certain leading principles of pronunciation, and some few analogous sounds, in our language which are called into play in oral spelling, guiding us in the spelling of many words. Yet they are so very few that they seem weak props to lean upon, while the *word-pictures* always form a firm hold to cling to. Therefore the *word-picture* must hold the prominent place in the mind, rather than the word-sound.

Then let us from the beginning adopt the method which will the best impress the word picture upon the mind, at the same time not ignoring the word-sound. This we may do as soon as children begin the *Analytical Reader*. The common method is to require the pupil to spell out each word in the reading-lesson. The better way is to familiarize him with each new word of the lesson, *as a whole*, before he begins to read; to draw his attention to it as a new word to which we wish to introduce him. If he can print, let him print it on the slate; if not, the teacher may print it on the blackboard, making a little sentence to use it in its proper connection, that it may be associated with an idea. This impresses the word-picture upon the mind; and if this method is followed children will, naturally and by habit, spell without spelling the words they have seen, and at the same time will be better readers. To have to stop to analyze words while reading, draws the attention away from the *looks* of the word as a whole, destroys the *word-picture*, snaps a link in the chain of ideas, if haply the pupil has caught them, and puts a sudden check on the interest he may have gained in the subject-matter.

So soon as children can print readily they should be required to copy short paragraphs, or perhaps no more than short sentences from their Readers. By this exercise, repeated daily, they soon learn to spell the common words, like *which, here, there, their, also, of, off, to, too*, etc., over which so many trip who can spell correctly more difficult words given out orally.

When oral spelling begins, it should *always* be combined with writing. The most simple words should be at first chosen, and they should be those which possess coincidence of sound with other words, and which have a meaning to the children. We should not, until later, in-

introduce words of irregular sounds, — from the simple to the complex in teaching spelling, as in other studies. For instance, we would choose words from the reading-lesson. "In" may be the word; after the little ones have spelled it orally and written it, we would ask them to spell *bin, tin, fin, gin, sin, skin, kin, win*. "But" may be the next one, and this will suggest *nut, rut, cut, shut*, etc. This exercise, continued daily, will impress upon them the analogous sounds at the same time with the word-pictures.

Swinton's Word-Primer, and *Monroe's Practical Speller* are valuable books, in that they contain names of familiar objects which always please, interest, and impress the children. Yet the names of different parts of the body, of articles in the room, on the table, in the garden, etc., contain so many of the irregularly-constructed words of our language, that it is not well to puzzle children with them until after they are thoroughly familiar with more simple words of analogous sound. When they are ready for *Swinton's Speller*, still the impressing of the word-picture upon the mind, by writing the given words in sentences, as they may be called upon to do in practical life, must be held of the first importance. This makes intelligent spelling. The pupil observes the word, associates it with an idea, spells it, writes it. This method is much better than trying to remember a string of words having no ideas connected with them.

As soon as children can spell orally words of two or more syllables, it should be by the good, old-fashioned way of spelling by syllables; and at every additional syllable, of finding their way back to the first one, pronouncing each in its turn, thus: C-o-n con, s-t a-n stan, Constan, t-i ti, Constanti, n-o no, Constantino, p-l-e ple, Constantinople. This promotes accuracy in spelling as well as in pronunciation.

Later, after the grammar-school age, when the study of more difficult words is undertaken, still they must be written. And with the difficult words must be combined also the simple, every-day words over which so many preposterous blunders are often made; but always the *word-pictures* should hold a higher place than the word-sounds, for those must stand ready in the mind to be summoned to the front to do duty in the battle for good spelling.

— Wisdom and truth are immortal, but cunning and deception, the meteors of the earth, after glittering for a moment, must pass away.
—*Robert Hall.*

ORAL READING.

BY MRS REBECCA D. RICKOFF.

Why do we have oral reading? We hear much about sense-reading and word-reading, about mechanical-reading and intellectual-reading, and the point is well made that our greatest need is to give attention to sense-reading. But let us take care that we go not too far in this direction, and miss the very thing we aim at.

Why do we not have each child read silently his paragraph, and then stand up and tell what it means? We all know that this is a most excellent exercise, and one in which children delight; but are any of us ready to say that this is sufficient for the reading-exercise? We go into a school-room and hear a class read; even though they give good inflections, have clear enunciation, and round, smooth voices that can be heard, and yet mispronounce some words and omit others, are we ready to say that this is good reading?

There are two kinds of actors, — one who, never losing consciousness of his own individuality, plays upon his audience through the power of his art alone; the other loses himself completely in the part he plays. I once heard a gentleman say, in speaking of Joe Jefferson, that he wondered how the man could tell which was Jefferson and which Rip Van Winkle. How these two kinds of actors affect their hearers we all know, and which is the gainer by the part he plays we can easily surmise. And we should lay these lessons to heart, and give the children pure things to read, and so instruct them that they shall, for the time, be the only thing they read. Then will not only thought control expression, but the child will be ennobled and enriched by experience of the thought which has for the time dominated his mind.

A long-standing trouble in teaching is, that we burden the reading-exercise with many things which do not belong to it. There should be a divorce between elocutionary training and the reading-exercise; and not this only, for there is still much pertaining to the reading-lesson which should be preparatory to the reading-exercise. There should be a rapid recognition of the forms of all new words, and of the meanings of the new words as they stand in various relations in various sentences. This should be blackboard work. There should be training in the correct pronunciation of all new words, and a studying of the reading-lesson before the lesson is read aloud by any one. Thus prepared, and with his organs trained and his attention directed to the importance of inflection, emphasis, etc., by the separate exercise of elocutionary training, the child should find the reading-exercise a test of his

power to use his organs to express in his own manner the thought which his mind has conceived.

Nowhere, and under no circumstances, can we afford to ignore expression for expression in blossom; but within proper limits we must permit to each child his own expression. If we can do this, we shall no longer have each child in the class reading a paragraph in identically the same way that every other child reads it, and all exactly like the teacher, but each child will essay to express in his own way his own conception of the meaning of the paragraph.



PROGRESSIVE STEPS IN THE STUDY OF MUSIC.

BY W. S. TILDEN.

I.

Those who read this series of papers on music, in *THE TEACHER*, will doubtless express surprise, possibly disapproval, that nothing is said about *note-teaching*. One thing at a time.

The *facts* of music are of more importance to the learner than its conventional symbols.

The symbols are easily enough learned, when the facts are comprehended.

All the elementary music-books present note-teaching as if it were the chief end. We therefore desire to emphasize the teaching of the realities, and to present a definite method therefor.

LEARNING TO THINK SOUNDS.

It is of the greatest importance that pupils be definitely taught to think sounds. As has been justly said, the habit of thinking sounds forms the groundwork of all confidence in reading music. To be of benefit, one must think forward, never backward. If *do re* is to be sung, think of *do re mi fa sol*, and start out as if the entire series were to be sung.

In the practice of exercises for acquiring this ability, it is better that the sounds be detached from each other, in order that the mind may more readily leave the sound already sung, and reach out toward the succeeding. There are also other advantages, in a more decided attack, and in counteracting the miserable habit of slurring, which is so common.

It will be most convenient to arrange the scale upon the board in one column, as shown in the accompanying diagram.

The following exercises in figures are for the teacher's guide in pointing. The large figures are to be sung; the small ones to be thought of, but not sung, giving as much time to think a sound as to sing one.

In pointing, let the pointer rest directly upon the figures when sounds are to be sung, and at the side of the figures when they are only to be thought of.

1 2 3 4 5
1 2 3 4 5 1
1 2 3 4 5 1
1 2 3 4 5 1
1 2 3 4 5 1

5 4 3 2 1
5 4 3 2 1 5
5 4 3 2 1 5
5 4 3 2 1 5
5 4 3 2 1 5

5 6 7 1
5 6 7 1 5
5 6 7 1 5
5 6 7 1 5

1 7 6 5
1 7 6 5 1
1 7 6 5 1
1 7 6 5 1

1 2 3 4 5 6 7 1	1 7 6 5 4 3 2 1
1 2 3 4 5 6 7 1	1 7 6 5 4 3 2 1
1 2 3 4 5 6 7 1	1 7 6 5 4 3 2 1
1 2 3 4 5 6 7 1	1 7 6 5 4 3 2 1
1 2 3 4 5 6 7 1	1 7 6 5 4 3 2 1
1 2 3 4 5 6 7 1	1 7 6 5 4 3 2 1

If necessary, at first, the sounds indicated by the small figures may be sung very softly; afterward pass them in silence, the mind alone singing them.

SONG EXERCISES.

I.

| 1 2 | 3 3 | 2 2 | 1 1 | 3 4 | 5 5 | 4 4 | 3 • |
1. Now the morning sun is beaming, Making glad once more our sight;
| 2 3 | 4 4 | 3 4 | 5 5 | 6 6 | 5 4 | 3 2 | 1 • ||
And the earth, with beauty teeming, Wakes a - - gain to life and light.

2. Fragrant flow'rs, their odors flinging,
Fill the air with perfume sweet;
Merry birds, their clear notes singing,
Day's return with carols greet.

First Steps in Number.

II.

(Commencing with the up beat.)

5 | 3 4 | 5 6 | 5 • | 1̇ 5 | 6 5 | 4 3 | 2 • |
 1. A --- way with needless sor --- row, Though trouble may be --- fall,
 | 0 2 | 3 4 | 5 5 | 1 • | 5 6 | 5 4 | 3 2 | 1 • | 0 ||
 A brighter day to - - mor - - row May shine upon us all.

2. We cannot tell the reason
Of all the clouds we see,
Yet ev'ry time and season
Must wisely ordered be.
3. Let us but do our duty.
In sunshine and in rain,
And Heav'n, all bright with beauty,
Will bring us joy again.

In treating these two song exercises, *first*, point the sounds, in the order in which they occur, upon the scale diagram on the board, the class singing; *second*, beat the time, and speak the time-names,—*ta* for the figure, *a* for the dot, *rest* for the zero; *third*, sing the exercise as nearly as possible in time without beating; *fourth*, sing and beat the time; *fifth*, sing the song with words.

FIRST STEPS IN NUMBER.

BY MRS. IDA WHITSETT BLACK.

III.

[Continued.]

1 + 1 = 2. "How many number-sticks do I place on the table?" "How many now?" "How many in all?" "Yes, two; so I will place *two* number-sticks close by the others to help us remember that one stick and one stick are just the same as two sticks." "How many can look at these sticks and say, *one stick and one stick are two sticks?*" "You may say it." "That is right." "You may say it." "No; you made a mistake. Keep your voice right with my fingers, and name just as many sticks as I put my fingers on each time."

"Now come and put *your* finger on *one stick*, then on the other *one stick*, then on the *two sticks*, and see if you can say it." "Try it once more." "That is well done." "Now, see if you can say it just by

Looking at the sticks." "Class may say it;—once more;—again." "You see, it does not sound well, because you are not speaking together." "Speak the words just as my fingers touch *one stick*, and *one stick* and *two sticks*." "That is better. Now, say it with my fingers again." "Now say it *without* my fingers." "That is well done. You see, every time I ask the class to say anything for me, you must *all* say it, but listen to each other so that you will all speak it together."

"Now see if you can say what I put on the table." "'One penny and one penny are two pennies.'" "'One nut and one nut are two nuts.'" "'One letter-card and one letter-card are two letter-cards,'" etc. "Now, who will tell how many one and one are of everything?" "You may all say, *One and one are two*," "I wonder if we could write that on the board." "What is the *first word* of it?" "Who can *write* it?" "You may." "Who can tell me the next word?" "Can any one *write* the word *and*?" "Would you like for me to write it for you?" "I will not write the word '*and*,' but will write something easier, so you all can make it." (Make the sign; talk about the lines, until pupils have fixed it in their minds.) "Now, what does this sign mean?" "And because it *means and* we will always *read* it *and*." "Now, who can make it down here by the 1 we have written?" "That is nicely made." "Class, read what we have written"

"Who will write the next word?" "Good." "Now read." "Can any one tell me what the next word is?" "Have we learned to make it?" "Then I will show you something that *means are*, and we will always call it *are*." "What shall we always call this?" "Who will write it down where the others are?" "That will do" "Read what we have written." "What is the next?" "You may write it." "Now, is that all?" "Read it." "Read it again." "Now let me see how nicely each one can write it on the board."

Assist, encourage, advise, praise; but, if you are careful about keeping the grade together, *be sure* that each pupil does what you have required, before you advance.

"Stand in your places again." "Albert may help me. Take this box, and as I give each pupil an object from *my* box, you give him one just like it from *your* box."

"Laura, what did I give you?" "You gave me one grain of corn." "What did Albert give you?" "He gave me another grain of corn." "How many have you now?" "I have two grains of corn." "Now, say,—You gave me one grain of corn, and Albert gave me one grain of corn; so now I have two grains of corn, because one and one are two." So continue until each pupil can give a similar statement concerning the objects he has received.

Now collect the objects, telling the pupils to remember what objects

they had. Now have them re-state the fact they have learned, calling from their memories the number and name of the objects they held, closing with the general statement which is on the board. Thus,—“If you were to give me one grain of coffee, and Albert were to give me another grain of coffee, I would have two grains of coffee, because one and one are two.”

For several days the slower pupils must repeat after you, and read the general concluding statement from the board.

$1 \times 1 = 1$. “Class, notice; what did I do?” “You placed one number-stick on the table.” “How many *times* did I place one stick on the table?” “How many are on the table?” “Then, if I place *one* number-stick *one time* on the table, how many are one times one?” “Can you say, *One times one is one?*”

Drill on statement. Explain the form of the sign, and that because it *means times* we will always call it *times*, as you did the sign \times .

“Georgie, what did I do?” “You gave me one bean.” “How many times?” “One time.” State, “You gave me one bean one time, and I now have one bean, because one times one is one.”

Have each pupil state the same concerning the object you have given him. Then collect objects; have them recall the name and number of the object, as in the preceding lesson, on $1 + 1 = 2$.

$1 - 1 = 0$. “What do you see on the desk?” “One number-stick is on the desk.” “What have I done?” “You have taken it away.” “What is on the desk now?” “Nothing.” “Is there less or more on the desk than at first?” “Less.” “Can we write the word *less*?” “I will show you.” “Isn’t it easy to make?” “If there was *one* on the desk, and now there is *one less* than at first, how many are there now?” “None.” “Shall I show you how to write the figure which means *none* or *nothing*?” “That is easy, too, isn’t it?” “*All* our lessons seem easy to-day.” “How many had we on the desk at first?” “Who will write 1?” “Then, when I went to the desk did I make it *more* or *less*?” “You may write *less* by Georgie’s 1.” “How many did I take from the desk?” “Gracie may write it after *less*.” “How many did I leave on the desk?” “Josie may write *none*.”

“Now, let us see if we can read it.” “ $1 - 1 = 0$.” “Why do you stop?” “It is not all there.” “Who can think what else ought to be there?” “I am glad so many know.” “Birdie may write it.” “Now read.”

“Albert may pass this box. You may each take one object from the box.” “What have you?” “I have one pencil.” “Put it in the box. Have you less or more?” “How many have you?” “Then say, ‘I had one pencil, and put it in the box; and now I have none, because 1 less 1 are 0.’”

Have class all give statements, and proceed as before.

$1 \div 1 = 1$. Exhibit an empty pint-cup,—or any other measure familiar to your children. Ask how much we can put in it of water, milk, coffee, etc. Ask how many *times* we can put one pint of anything in 1 pint cup.

Following suggestions and plan used in preceding lesson, pupils state,—“If I had one pint-cup I could put one pint of milk in it one time, because *one contains one one time*.” Call upon pupils to represent this statement on the board. Teach the sign *contains* as in previous lessons. Explain that though we *write* the sign $=$, we *never* read it when we have also the sign *contains*. Many pupils will understand the statement *1 is contained in 1 once*, better than the other. Teach that both statements are correct, and allow choice.

Deskwork.—With the objects contained in their boxes, have pupils form the lesson, just recited, on their desks, with number-sticks, cigar-lighters, etc., cut in lengths to suit, for signs. Small grains, pebbles, shells, or buttons complete the sign *contains*, and form periods. Have this work reproduced on their slates in *figures*.

Be careful not to push your work too rapidly. “*Everything comes in time to him who can wait.*”

PRIMARY SCHOOL OCCUPATIONS.

BY IDA M. GARDNER, PROVIDENCE, R. I.

III.

LEAF-LESSONS.

These may be given by one not proficient in botany. The necessary information may be found in *Webster's Unabridged Dictionary*, or in any elementary botanical work.

Let the pupils bring in several of each different kind of leaves to be found in the vicinity. Press them, and when ready for use let the children put together,—

(1) All having the same general outline. Teach the terms applied to leaves to describe the shape, as *lance-shaped*, *halberd-shaped*, etc.

(2) All having same style of edge or margin. Teach *crenate*, *dentate*, *serrate*, etc.

(3) All having the veins arranged alike. Teach *netted-veined* and *parallel-veined*.

(4) All having the leaf composed of one or several leaflets. Teach *simple* and *compound* leaf.

Might also describe leaves in regard to the base, the apex, etc.

By simple lessons like these the pupils can gain a knowledge of some simple terms and elementary facts of botany, can cultivate their powers of discrimination, and be lead to notice the works of Nature. One step farther leads them up to Nature's God.

STICK-LAYING.

The materials for this exercise may be purchased of any dealer in Kindergarten materials, or they may be made from common matches by cutting off the brimstone tips.

Let the pupils arrange the sticks upon the desk to form some simple straight-line design, copied at first from the board. Later the pupil should originate his own designs. Insist that something shall be made. Never allow the pupil to spend his time over that which is to amount to nothing. Let him early learn the lesson of triumphing over his own inclinations or discouragements. When a design has been formed by the child, let him copy it upon slate or paper. The best may be preserved by the teacher as models for others.

PAPER-WEAVING.

(This exercise was illustrated by specimens of paper-weaving. The mats and strips were also shown, and the manner of using the needle. Home manufacture of the materials was explained. For full information address E. Steiger, 25 Park Place, New York, asking for his "Illustrated Catalogue of Kindergarten Material.")

Show the method of using the needle ; then let the pupil copy some simple pattern given by the teacher. Let the patterns gradually increase in difficulty ; then work for original designs. Set the children to studying carpets, baskets, table-linen, etc., for new designs. Any pattern that can be used on a square-meshed canvas can be used in weaving.

The results should be given away by the children. Teach them generosity. The care and patience necessary to secure a perfect design will lead the child to prize his work when completed. Let him choose some friend to whom he may present it. Fine designs may be given to the teacher to lend as copies. Particular attention should be given to the harmonious blending of colors.

These are but a few of the many exercises that may be given to occupy the moments when otherwise the children would sit "in order." Better give a child a handful of beans to find how many are spotted alike, or a rose to pull to pieces to find how many petals are shaped alike, teaching him thus the grand diversity of nature, than to keep him

in idleness and "in order," wasting the golden moments of his life.

In the suggestions thus far made, I have kept in mind the idea of employment for the little ones while the teacher is busy with older classes ; but there are employments for the whole school which should also receive attention. I will take time to speak of but two. These are of paramount importance.

STORY-TELLING.

In all ages and in every clime story-telling has had an important place in the development of nations. But never was Scandinavian skald, Scottish bard, or English minstrel, so welcomed as is the man or woman who can satisfy a child's demands for stories.

What has made us what we are? Some direct teaching, some reading, much influence indirectly exerted, and a vast amount of story-hearing.

Story-telling should be at least a weekly exercise in every primary school. Tell a story one week for the children to repeat to you the next week. Let it be given in the child's own language, incorrect expressions being corrected by the teacher. Be sure that one story is well fixed in mind before another is told. Have occasional reviews of all stories told during the term.

What child does not love a fairy-tale? Why not substitute some of the beautiful stories of mythology, until the child would eagerly read *Greek Hero Stories* written by Niebuhr for his little son?

Did you ever tell a story of brave and stirring deeds to a child who did not startle you by the earnestness with which he asked, "Is that story *true*?" Why not satisfy this demand for truth by stories from our own national history, or that of England, Greece, or Rome? Once arouse in the child's mind the idea that such stories can be found in certain books, and you will have him eager and ready for direction in his reading.

Why may not the child who leaves our public schools at the age of ten have a general knowledge of his country's history? Indeed, the true way to teach history to a child is by "the free use of maps and the telling of significant stories."

— There is not a trouble so deep and swift-running that we may not cross safely over, if we have courage to steer and strength to pull.

— Minds of moderate caliber ordinarily condemn everything that is beyond their range.

WORD - PICTURES.

BY MRS. SARAH M. WYMAN.

V.

Teacher.—"How *shall* we commence the *word-picture* of Daisy?"
Several hands raised.

Teacher.—"Helen?"

Helen.—"I thought of one thing to say about her."

Teacher.—"What is that, Helen?"

Helen.—"Daisy has three sisters younger than herself, and last winter they all wore little blue hoods."

Teacher.—"Very well. Hannah, what have you?"

Hannah had risen in her eagerness, and her red, plump hand was shaking like sumac-berries in November.

Hannah.—"Mother said she used to see them go chestnuting last fall, one a little higher than another, just like a pair of stairs."

Teacher.—"Anna?"

Anna.—"Had we ought to begin with that?" in a tone bordering on disgust.

Teacher.—"Anna, please repeat what you said. Class, take notice."

Anna repeats.

Teacher.—"Anything wrong in that?"

Daisy's hand comes up timidly, as if in doubt whether she has a right to any part in this picture.

Teacher.—"Daisy?"

Daisy.—"We should not say *had ought*."

Teacher.—"What, then?"

Daisy.—"Ought *we* to begin with that?"

Teacher.—Yes, children, I don't know whether you have all been told this, but will you try and remember it now? We must never use the word *had* with *ought*,—never say *we had ought*, *you had ought*; but *I ought*, *you ought*, etc. If I were to tell you the reason of this now, you would not understand, but you will know when you are older. You can remember, all the same. What is it you are to remember?

The class answer, "Never to use *had* with *ought*."

And so the word-picture goes on. Every sentence is talked about, and corrections made in a way that all can understand. Attention is given to spelling, punctuation, and everything that appertains to the proper use of our language.

The *word-picture* of Daisy is finished, and the class requested to copy it in their little books, and to bring them into the class at the next lesson, for the inspection of the teacher.

Teacher.—"Now, children, each of you may select a classmate and make a word-picture of her. Write on a large sheet of paper, and be careful to remember all I have told you about the manner of commencing the margin and paragraphs. We will see how many can make a picture so perfect that the others will know for whom it was written."

Several hands raised.

Teacher.—"Julia?"

Julia.—"Shall we write the real name of the one we choose? If we do, the girls will all know."

Anna. (Eagerly.)—"We ought to take some other name, hadn't we?"

Teacher.—"Hadn't we what, Anna?"

Anna.—"We ought to take some other name."

Teacher.—"Yes, go on; hadn't we?"

Anna.—"Hadn't we ought?" (blushing and confused.)

Teacher.—"What was it I asked you not to say?"

Anna.—"Had ought."

Teacher.—"And you have said what?"

Anna.—"Hadn't ought."

Teacher.—"Write it on the board, please." Anna writes correctly.

Teacher.—"What is the apostrophe for between the *n* and *t*?"

Daisy.—"To show the letter *o* is left out."

Teacher.—"Then it would be *had not ought*, which we should not say. How many will try and remember this?"

Hands raised.

Teacher.—"Remember what?"

All answer, "Not to say *hadn't ought*."

DRILL EXERCISES IN READING.

BY KATE L. BROWN.

MODEL II.—OBJECTS FAMILIAR BUT NOT PRESENT.

Exercise IV.

Teacher.—"I was walking by Lulu's house, yesterday, and what do you think I saw in the elm-tree?"

"A bird,—a robin, I guess!" (This is from Alex., who has a warm love for God's creatures.) "It was a flag,—a kite!"

"No; you are wrong. It was Lulu's white cat. She sat on one of the lower branches, purring loudly at the sight of a nest full of young

birds. Oh, how her yellow eyes shone! James, the hired man, got her down, and chased her away."

"She did not get the dear birdies," cried Lulu, looking earnestly at the teacher.

"We are glad of that, Lulu. How many would like to make a story about her?"

The little hands are flung up eagerly, and bright eyes dance in anticipation.

"Whose cat shall we talk about? Lulu's cat! We will talk about Lulu's cat. What shall we say first?"

Percy,—"Lulu has a cat."

Gabrielle,—"Lulu has a white cat."

"That is better. I will write it here."

Lulu,—"My kitty's name is Muff."

"What shall I write?"

Helen,—"Lulu's kitty is named Muff."

"We began the first story with Lulu. Suppose we begin the next story with *her*?"

Lillian,—"Her name is Muff."

"That is good. Who can tell me something else about Muff? You have all seen her."

Harold,—"She has a long tail."

Arthur,—"She has yellow eyes and big whiskers."

"Put these last two stories into one."

Grace,—"She has a long tail, yellow eyes, and big whiskers."

"Very well; Lulu has something."

Lulu,—"She catches rats and mice."

Grace,—"She likes milk, and will eat peanuts, too."

"What a cat! That is very funny. What does Muff do when a big dog comes into the yard?"

Alex.,—"She puts up her back and spits at him."

The story continues, and here is the result:

MUFF.

"Lulu has a white cat. Her name is Muff. She has a long tail, yellow eyes, and big whiskers. She catches rats and mice. She likes milk, and will eat peanuts, too. When a dog comes into the yard, Muff puts up her back and spits at him. Muff will run on the wall and cry at night; but she likes best to climb up in the elm-tree and peep at the young birds in the nest."

After the story is written, the children read it, and talk about any new words which may occur in it. The teacher copies all the stories that the children make, on large cards. Occasionally these cards are

distributed among the children, and used as *test-exercises* in reading at sight.

MODEL III.—A STORY FROM A PICTURE.

The teacher holds up a picture. "Shall we make a story from this picture?"

"Oh, yes!" is the delighted response.

"What do you see?"

"I see ducks, and hens, and cows," cries Percy.

Lulu,—"See that dear little pig!"

"What do we call a place where there are ducks, hens, cows, and pigs?"

Harold,—"It is a farm. We have a farm in Scituate."

"What shall we name our story?"

Alex,—"The farm."

Helen,—"Grandpa's farm."

"I like that last. There is grandpa, leading a little boy. Where does grandpa live?"

"Grandpa lives on a farm."

"What does he have on his farm?"

Harold,—"He has ducks, cows, hens, pigs, horses, and rabbits."

"Do you see any rabbits, Harold?"

"No; but I guess there are some in the barn."

"Don't guess, Harold; talk of what you see."

Grace,—"Here *is* a rabbit, right down in the corner;" and, sure enough, there is the little fellow, peeping out from among the grasses. So *rabbit* is added, to the delight of the children.

"What else do you see, Gabriel?"

"I see a house and a barn. The barn-door is open, and I see some doves on the floor."

"What are the cows and horses doing?"

Helen,—"They are drinking water from the pond."

Percy,—"The bars are down! The cows will get into the garden!"

After the picture has been thoroughly examined and discussed, the story upon the board reads thus:

GRANDPA'S FARM.

"Grandpa lives on a farm. He has ducks, cows, hens, pigs, horses, and rabbits. I can see his house, and behind it is the barn. The barn-door is open, and I can see some doves on the floor. The cows and horses have gone down to the pond to drink water. Some one has left the bars down. The cows will come in and eat the corn. I will go to the farm, some day, and drink milk."

When the children enter the Second Reader they are taught literal-spelling, and phonic-spelling is added to secure good articulation. Until this time they have been taught solely by the method indicated in these papers. As they progress into more difficult work, "The Nursery," "Wide Awake," and "St. Nicholas," are frequently used instead of the regular text-book. Writing of words, phrases, and sentences, which have been previously taught, is an every-day feature, and the reading is thereby greatly facilitated.

BESIDE ME YET.

BY S. M. WYMAN.

A freckled boy, some ten years old, —
A face that all my secrets told, —
Beside me stood sweet Mabel Lee ;
A happier boy you'll never see.

We read from out her spelling-book,
And once her hand I slyly took,
Because, in keeping on the line,
It chanced to come so close to mine.

I thought, perhaps, she meant me to.
Sometimes her sums I used to do ;
Sometimes was kept till after school
For having failed to learn a rule ;

Then, Mabel I was sure to find,
Waiting beneath the window-blind.
Promoted to another grade,
Still, by my side, sweet Mabel stayed.

Her soft brown eyes, just fringed with gold,
The heart's deep mysteries unfold ;
My proud success, like gems, they wear,
And my defeat lie sadly there.

When college-honors come to me,
Sweet Mabel, at my side, I see ;
Together Homer's gods are known,
And wealth of science made our own.

The school-boy's tasks no more assigned ;
With manhood's toil, my brow is lined ;
But tenderly the strifes are met,
For Mabel sits beside me yet.

PRACTICAL LESSONS IN NATURAL HISTORY.

BY MARY D. M'HENRY, PHILADELPHIA.

LESSON VI.—THE USES OF PLANTS.

Set the children to thinking about the uses of plants ; after allowing several minutes for consideration, ask those who have thought of any to raise their hands. As one by one right answers are given, write them on the board side by side, thus: *Beauty; Shade; Food; Building.* Next ask for examples under each ; put the names below, till you have several in each column. This will be a nice exercise for the children to copy on their slates, thus teaching them the spelling of many new words.

They might be required to bring in new lists the next day, thereby training individual thought. At this stage of instruction, little lectures on substances from the vegetable world are appropriate and useful. One on Cotton ; its growth, and the process of making it into thread and cloth. Another on Wheat ; its conversion into flour and bread.

Numberless others can be developed. The following subjects are among the most familiar and instructive: Lumber, Corn, Rye, Oats, Acorn, Apple, Camphor, Pepper, Nutmeg, Cinnamon, Ginger, Cloves, Rice, Coconut, Raisins, Figs, Coffee, Tea, Starch, Sugar, India Rubber.

A lecture on Coal would be very interesting if you have samples of the different stages of its formation from the Vegetable Kingdom to the "Mineral ;" Peat, Lignite, Bituminous Coal, Anthracite Coal,—teaching the names if you choose. In preparing for your lectures, be thoroughly posted upon your subject ; make it known, pick out the most striking qualities and points, condense into a complete outline ; then use simple language, a fresh, bright manner ; showing specimens whenever you can, allowing the pupils to handle them ; so that some definite impress is made upon their minds through the eye.

These lectures need not interfere with the order of the lessons on "Natural History," but be given at other times, as opportunity occurs.

SAMPLE OF A TALK ABOUT COAL.

Thousands of years ago our world was covered with trees much larger than any we now have. There were no men to build houses or ships from the wood. "What then, you say, was the use of these forests?" Listen :

Bye-and-bye the ocean rose over the land and covered the trees. This killed them ; some fell down, others remained standing, and as

years after years passed by, they were covered with the sand and mud which forms the bottom of the seas. Then the waters rolled away, leaving the buried trees; the earth over them dried; other trees grew on the world. God made Adam and placed him in the Garden of Eden. More years rolled by,—men, women, and children lived and died, but nobody knew of the buried trees. But God had not forgotten them; He was changing them all this time into something useful for man. At last, some one digging in the ground found a queer, black stone. It looked good for nothing; but, strange to say, they found this stone would burn, and soon it grew valuable, because so useful to keep people warm in the cold weather. Guess what it was? Coal. Yes; and yet this coal-stone was once a part of a tree, and so belonged to the vegetable kingdom. To what kingdom does it now belong? Mineral. Right. Now, you may see the different kinds of coal. This is peat; it looks something like wood; so does this lignite; but these other pieces you never would have thought were once wood.

WHO SHALL TEACH THE LOWEST GRADE OF SCHOOLS

BY ZALMON RICHARDS.

People are beginning to understand the value of *primary education*; and it is an ominous fact that the most important improvements in methods of teaching, which have been made of late, are chiefly confined to the lower grades of instruction; where, in fact, improvements are most needed.

The masses of the children under training are in the lower grades, and only a small portion of them ever enjoy the training of the higher grades. These masses are in the most needy and helpless condition, so far as training is concerned, and as they are destined to remain in school the shortest time, it is eminently proper that they should enjoy the best opportunities for such training as they are able to receive.

Some of our teachers of high culture and successful experience may consider it small work, and beneath their dignity, and contrary to their ambitious aspirations, to be employed in training children in the lowest grades. If so, they have mistaken the mission and real work of the teacher. What parent having a sick child, prefers to trust the life and health of his child to a young and inexperienced physician, who has just received his diploma? What mechanic will intrust the planning

and laying out of a splendid edifice to his apprentices? When we wish to commemorate the illustrious deeds and character of a patriot, a statesman, or a warrior, we seek the artist of the greatest genius and experience and skill to make the design and block out the work, and we employ any workmen who can use the chisel well enough to finish the statue or monument.

So in teaching, or moulding the young, undeveloped mind, and in giving it a right start in its educational growth, the most mature, experienced, and philosophical minds, stored with a ready knowledge of all that such young minds need, should be employed to give the first instructions. The young teacher who has just graduated with the honors of the high school and of the normal school, and who has mastered the branches taught in them, is better prepared to teach pupils in the *higher grades* than in the *primary grades*. It is a demonstrated fact that the well-educated, experienced, and successful teacher, can teach and train the ignorant primary pupil with vastly better success than the young and *inexperienced* teacher, however well educated. It is a fact, also, that the chief difficulties which the teachers of higher grades meet arise chiefly from the miserably defective primary training of their pupils.

The reason why such a large portion of pupils come from the public, and other schools, so poorly fitted for any kind of business in life, is that during the whole of their *school life* they were under the training of unskilled and inexperienced teachers. These are serious facts, and they show plainly that the usual plan of appointing teachers *should be reversed*.

But let it be understood, in this case, that the *salaries* should *not* be graded, as the schools are usually graded; for, as the best teachers should teach the lowest grades, they should have the *best* salaries; and this would give *dignity* to *primary teaching*, and insure more than twice the amount of useful training now realized in the same time.

— It is wonderful how silent a man can be when he knows his cause is just, and how boisterous he becomes when he knows he is in the wrong.

— Let us, at least, make the way which leads to right as open and accessible as that which leads to wrong. Children are governed by circumstances as well as by innate tendencies. If we cannot prescribe natural tendencies of children, we can prescribe, in a great measure, the circumstances in which they are placed. The first may belong to the jurisdiction of Nature; the last is within our own. — *Horace Mann*.

OUR NOTE-BOOK.

GOD IS LOVE.

BY HON. J. E. DAWLEY.

Three little words, and only three,
 But how they shine, and how they glow,
 And into mighty meaning grow;
 And how they speak to you and me!
 Read them again, and read with care!
 They sweep life's sea from shore to shore,
 And reach into the evermore,—
 The yonder that is ever fair.

What words can make the heart outsing,
 Or what the soul's deep soundings move,
 Like the sweet sentence, "God is love?"
 Or give to life such blossoming?

And more; these words should most avail
 In bringing us where we can see,
 In trusting God, where we may be
 When human hopes and friendships fail.

Oh, in life's darkest hour I can,
 In more than golden letters, see
 (And this gives hopefulness to me)
 That God is love to fallen man.

So rest I in these words of gold,
 (So like a child they make me feel
 To Him, the Father, they reveal)
 That such a blessed truth infold.

In entering upon the preparation of the first number of the fourth volume of *THE TEACHER*, we do so with the earnest purpose of making it more than ever a means of stimulating and aiding the teachers in the elementary schools of America to adopt those methods of instruction which will best develop all the capacities of their pupils. In its pages, during the coming year, will be found the words of wisdom derived from the experience of those who will be eminently safe guides to such as have not yet attained, by training and experience, the ability of making the most intelligent application of those processes and methods in the management and instruction of those committed to their care.

The one central thought which we wish to impress upon our readers, in this first number of the new volume, is the *value of time* and its proper use, not only to the teacher, but to the learner. As we contemplate the work expected to be performed by teachers of young children, to satisfy the demands of the age in which they are called to this responsible service, we are amazed at the immense waste of time that is permitted. Much of it, no doubt, comes from a

want of thought, and a failure to appreciate its value, rather than from a desire to shirk duty.

There is no lesson more important to impress upon young children than that of making a wise use of their time. Teachers fail in this part of their mission largely for want of *method* in their own work. No sphere of action in life makes the old adage, "A time for everything, and everything in its time," more potent for good in its rigid application, than in that of the primary-teacher's work. A careful allotment of all the hours assigned to the work of the school is one of the primary steps to success. There should be no leisure in the operations of the school,—no "time to kill,"—no spare hours. Each day should be so mapped out by the teacher that every minute will be employed in furtherance of the great purposes and aims of school-life. The habits formed in childhood often influence the whole life. The eminence of men and women who have accomplished the greatest good in the world can be generally traced to a methodical use of their time, which habit was formed in early life. Children learn more from example than by precept, and thus we urge upon teachers of the young who aim to do noble work of lasting value to their pupils, the importance of *method* in the improvement of the time devoted to the duties of their profession. To no class of persons are the words of Gladstone, the present Premier of England, more securely applicable than to the teacher of young children: "Thrift of time will repay you with a usury of profit beyond your most sanguine dreams, while the waste of it will make you dwindle alike in intellectual and moral culture beyond your darkest reckonings." Akin to this is the testimony of all who have achieved the highest success in life,—in all departments of human action.

"Not on flowery beds nor under shade
Of canopy reposing, heaven is won."—*Dante*.

In Edmond About's work, "The Story of an Honest Man," we find the following statement of the way in which the father of the hero managed the education of his son: "Gently and patiently he accustomed me to *look* and *think for myself*, instead of imposing upon me his ideas, which my docile, submissive spirit would have blindly accepted." In this quotation we see the spirit of the genuine teacher of little children, and we heartily commend it to the thoughtful consideration of our readers.

In all sections of the country there is an intense interest felt in regard to the admirable reformatory work in elementary instruction, which has been largely stimulated by Col. Parker, recent Superintendent of Schools at Quincy, Mass., and now one of the Board of Supervisors of Boston. That our readers may have the benefit of all his helpful suggestions, we quote some of his remarks made at the National Educational Association at Chautauqua:

"The richest fruitage of the past is the ability to move forward, and the essential condition of progress is freedom,—freedom to grow and help others to grow. What superintendent is not hampered? The teacher who is looking out for a re-election can't advance. The principal with one eye on a book-publishing house can't carry his school forward. A teacher chained to examinations can't be free. Our great battle is for freedom; freedom from

interference; freedom from methods. Have our own plans, and carry them out. There are,—

1. Teachers who work after a pattern; they are artisans. 2. Teachers who follow an ideal created by their own minds; they are artists. 3. Cobblers who patch up the bad work of others.

How are we to become artists, instead of artisans or cobblers? By *thoughtful* experience; by studying every step of our work. Ask yourself constantly, "Why did I do this?" "How can I do it better?" "How and where can I use the experience of others?"

Let the end be mind-development of yourself and pupils,—the power to *see* and *think*. Whatever best develops the mind, that is the most practical education. You have: (1) the thing to be taught; and (2) the mind to be taught. Know both of these, and method will take care of itself. Methods alone are doing incalculable evil.

God determined how the child's mind shall grow. All the teacher can do is to aid that growth. But you must have freedom to do this. Well, suppose your school-committee stands in your path. Take your life in your hand and say, 'Turn me out if you will; here I stand for children's rights.' We are a servile set, thinking too much of our bread and butter.

A superintendent who don't allow his teachers freedom, is a nuisance, and ought to be put out. A teacher who has no ideal, no lifting horizon, is a nuisance. I say to my teachers, Don't follow me,—go your own way to work. Do a little well. But one thing I do demand. You shall *move*. Move on, like poor-Jo. Do nothing twice alike. Don't do things you have done before. If the child stood up before, have him set down now. Whatever you do, do something different. Have no patterns. Uniformity is death,—unity is life. If we all study the principles that underlie education and the child-nature, we won't quarrel so much.

A story illustrates what is needed in all our schools. A young beau hired a horse to go courting. Before he got out of town the horse balked. He thrashed and coaxed and slashed to no avail. A crowd gathered, and one after another tried his plan of starting the horse. At last an old sailor said, 'I can make that hoss go.' 'Do it,' said the driver. He gathered up a big handful of half-melted snow and clapped it into the horse's nose, clucked to him, and away he went. 'Thar, I told you I could. All that hoss wanted was a *new sensation*.'

Give your scholars a new sensation, and they'll go."

In the First Book of "Supplementary Reading," just issued by Robert S. Davis & Co., Boston, for primary schools, prepared by Francis W. Parker, supervisor of schools, Boston, and Louis H. Marvel, superintendent of schools, Gloucester, Mass., we find the following suggestions in regard to teaching reading to young children. No more valuable hints and directions can be given than these, and we heartily commend them to the attention of every primary teacher:

"1. A sharp discrimination should be made between reading as a purely mental act, and reading aloud.

(a.) *Reading* is getting thought by means of words arranged in sentences.

(b.) *Reading aloud* is the vocal expression of the thought thus gained.

The first is the valuable mental act, and to it (getting thought) the entire concentrated attention of both teacher and class should be given, during the lesson. Nothing of detail or analysis,—as spelling, punctuation, pronouncing slowly, inflection, or emphasis,—should stand in the way of the clear comprehension of the thought.

Reading aloud is the teacher's best means of knowing whether the thought is properly in the mind of the reader. In order to have reading aloud perform this very important function, the following rules must be observed:

I. Pupils should not be required to express a thought (read a sentence aloud) until the thought is in their minds; that is, until the sentence is mentally read.

II. If the thought is in the mind, it will control expression, thus making attention to punctuation, mechanical emphasis, and inflection not only unnecessary, but a great hindrance to the proper expression of thought. Capitals and punctuation aid the eye in taking the thought, but have nothing whatever to do with the expression of it.

III. If the thought is not properly expressed, the teacher should call attention by a question to that part of the thought, or that relation of some idea to the thought (modification of subject or predicate) not fully grasped by the pupil.

IV. All words not known by pupils should be carefully taught from black-board before the lesson in reading is given.

V. Mistakes in pronunciation while reading should be reserved for special drill in pronunciation.

VI. Lessons in getting thought may be given in the following way: *The black horse ran swiftly up the high hill.* What ran? How did the horse run? Where did he run? What did the horse do? What kind of a horse? What kind of a hill?

2. Teachers should omit lessons which they find to be too difficult for their pupils, returning to them when the needed strength is acquired.

3. Members of a class should not know which one of them is to read next.

4. It is of great importance that pupils be successful in every attempt to read a sentence. The confidence thus gained will give them ease and courage.

5. During the first year, pupils should have books only while they are actively using them in reading. Very little of the so-called study, outside of recitations, should be allowed."

We submit the following valuable list of books for a *Child's Library*. We can heartily indorse most of these books, having carefully examined them. We sincerely hope that the primary teachers of American schools will do all in their power to stimulate their pupils to start such libraries, as was suggested in the "Note Book" in the March number.

Periodicals. — "Babyland," 50 cents a year; "Little Folks' Reader," 75 cents a year; D. Lothrop & Co. "The Nursery." "Wide Awake," \$2.00 a year; D. Lothrop & Co., Boston, Mass. "St. Nicholas," \$3.00 a year; Scribner & Co., New York. "Young People," \$1.50; Harper & Brothers, New York. "The Youth's Companion," \$1.75 a year; 41 Temple Place, Boston, Mass.

Religious. — "Dear Old Stories, Told Once More," by Faith Latimer. "Life of Jesus Christ for the Young," by Dr. R. Newton, 2 vols., \$20.00; Gebbie & Barrie, Philadelphia. "Sermons to Children," by Dr. R. Newton. "The Children's Church at Home," by Rev. Dr. J. Edmond; T. Nelson & Sons, New York. "Uncle Austin, or Introduction to the Bible," Prest. Board or S. S. Union. "Scripture Characters," by Guthrie.

Missions. — "Gaboon Stories," by Mrs. J. S. Preston, 80 cents. "Life by the Ganges," by Mrs. Mullins, 80 cents. "Life of Bishop Patterson" (smaller edition).

Song Books. — "Book of Praise and Christian Songs," Bigelow & Main. "Little Songs for Little Singers," M. Bradley & Co., Springfield, Mass.

Cookery. — "Six Little Cooks," \$1.00; Jansen, McClurg & Co., Chicago.

Poetry. — Longfellow; Whittier; Scott; etc. "Rhyme of the Ancient Mariner," Coleridge. "The Culprit Fay." "Thalaba," Southey. "Idyls

of the King," "May Queen," and others, Tennyson. "Songs of Seven," "High Tide on the Coast of Lincolnshire," etc., Jean Ingelow.

History.—"Ridpath's History of the United States." "Dickens's Child's History of England." Abbott's Histories.

Natural History.—"Child's Book of Nature," by Hooker. "Little Folks in Feathers and Fur, and Others in Neither," Mrs. O. T. Miller, \$2.25; E. P. Dutton & Co., New York. "Our Common Insects, and Zoölogy," by Packard. "Dog Life: Our Four-footed Friends," and Mrs. Youman's "First Book in Botany." Easy Lessons in Popular Science, Monteith, A. S. Barnes & Co., New York.

[We shall publish an additional list of miscellaneous books next month.]

THE following appreciative notice of THE PRIMARY TEACHER appeared in the last number of *Barnes's Educational Monthly*, from the pen of its editor, Jerome Allen, president-elect of the New-York State Teachers' Association: "The two published volumes of THE PRIMARY TEACHER constitute a mine of wealth from which any teacher can get much that is real gold. Nothing is published better adapted to the present wants of thousands of our schools."

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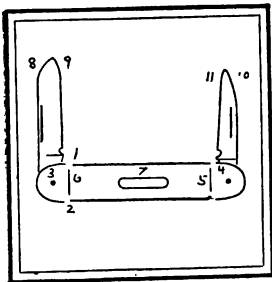
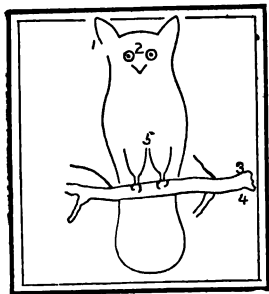
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NO. 2.

VOCAL CULTURE.

BY MRS. J. M. LORD.

From the numerous requests of teachers for answers relating to this subject, I have selected this one as the first I will reply to: "Of what age should our pupils be when we commence to teach them vocal culture?" My reply is, as soon as a child commences to attend school. The aim of the writer of the papers that have been presented under the head of "Sounds of Letters," and "Vocal Culture," in *THE TEACHER* for the last two years, has been to assist those who teach in this department, viz., the primary schools; and each and every lesson has been so simple, and so plainly given, that the youngest classes could use them. Some of the lessons were carried a little farther, so that those who were using the lessons in more advanced classes could be assisted somewhat. We believe fully in the theory that *all*, or very nearly all, of the unpleasant school-room tone can be abolished, if the lessons and drill are insisted upon by the teacher and thoroughly practiced by the class. The sounds of the letters must become a familiar study each day, and no pains spared in the explanation of each point, so that every one can understand the lesson: Commence with the practice of the light gymnastics, and never allow a pupil to acquire a habit of sitting or standing that is not proper and graceful as well as healthful. Do not forget that "as the twig is bent, the tree's inclined," an old but excellent adage.

Those teachers who are now just commencing to teach, or who have not until now been using the exercises that have been prepared in the series of papers just referred to, will need to look back over the numbers and commence with the methods there recommended. I will repeat in part, in this paper, one lesson in vowel-sounds. Write upon the board, "Alice has two black cats."

Teacher.—How many times do we find the letter *a* in this sentence?

Answer.—Four times.

Tea.—Minnie may read the sentence.

She reads it in a correct manner, without regard to the sound of *a*, viz. : Alice hes, etc.

Tea.—Did Minnie give *a* the correct sound in each word? Jane may read it.

She gives the short sound in each word. There will be a good opportunity to correct and fix in the mind of each little one the importance of being careful in the *little* words, like the word *has*. How often we hear it pronounced by well-educated teachers even, *hes*. The class should now be required to read the sentence, together and separately, giving the *a* the full sound required in each word where it occurs. Tell them this is the *short sound* of *a*. Let the lesson occupy fifteen minutes of the time allotted to the lesson (or one half).

The teacher may write again: "Arthur's dog bit Arnold's arm."

Tea.—Eddie may read the sentence.

He reads it carefully and correctly.

Tea.—Do we use the letter *a* in this sentence, giving it the same sound as in the first?

The class will at once see the difference. Show the class that the letter cannot be used, giving it the *same* sound in both, and be correct. This will be a new idea to the class, and the teacher will see the bright eyes open wide with interest. Show them how very unpleasant it would be to use the long vowel in the first sentence, and the short one in the last.

Now take up the drill of the sounds. The long sound is made by simply opening the mouth, allowing the tongue to lie in its place, and by allowing the breath to pass over the tongue and through the mouth, in a prolonged sound either high or low. Indeed it will be well to practice with them from the whispered tone to a high one, dwelling upon this for several minutes, or till it is well learned, keeping the position of the mouth and tongue even.

After this has been dwelt upon for a time, show them the difference in the manner that the breath is expelled from the throat, without any change of the position of the vocal organs, to produce the *short sound*; and here you will have taught them all that is needful for them to learn now. I would not *ever* introduce into a primary school but two sounds of any letter. More than these are a perplexity to the little ones.

Let me say, right here, do not attempt *too much*. I often find this to be a mistake in schools; too much has been attempted, and nothing well done. It is one of the mistakes that teachers of the primary schools fall into: they are desirous of pushing the little ones forward too fast in this study. We can do but *little*, and we must be satisfied with *that* little; and the reward will come when the classes go up higher

and it is discovered by their teachers that they have a *good* foundation laid for future work and progress. And this drill upon the sounds of letters will be invaluable to them in all their work, in the higher classes and schools, in vocal culture.

It sometimes seems to me to be so simple and so easy, this method of teaching this study, that I find myself wishing I could give the lessons personally to every pupil in our primary schools; and my long experience as a teacher has shown me the great advantage of these first lessons in *vocal culture*. During my recent vacation I visited a number of the primary schools in a large city, where the superintendent of public schools had insisted upon this drill, and I was truly delighted with the manner, the tone, and general appearance of the classes in reading. In these schools the teachers have not labored in vain; and the satisfaction they had in the progress that had been made amply compensated them for the labor they had performed; and I am sure that a foundation has been laid there that will be sure and lasting. In my next I shall take up some advanced lessons in the study, giving exercises in different departments of vocal culture.

I will add a little poem for a recitation.

DANDELION GOLD.

Pretty bits of gold, shining out so gay,
Making all the the roadside like a king's highway;
Did you ever wish that you grew inside,
That your bright round faces were the garden's pride?

We'll pick you for a crown, weave you in a chain,
Laughing till the happy echoes ring again.
Let us fill our hands full as we can hold,
Some of us will never have any other gold.

PRIMARY SPELLING.

BY OLIVIA HAMBLY.

II.

Spelling by letter can be commenced as soon as the children can spell fairly by sound. The letters will have been learned incidentally, you will find, and but one or two lessons on them will be needed; and these only to fix a few of the more difficult ones, and to teach them, if not already known, in their order. The last-named is fun for the children.

The lessons by letter may be taken in the same way as those by sound, but should be kept distinct from them. If there is not time for both of them, every day they can be alternated. Each will help the other if they are kept separate, but to teach them both in one lesson will create confusion in the child-mind.

Before spelling by letter has begun the silent letters can be passed over, or simply noticed as characters that *have* to be in the word, but are not sounded. These should be printed in light lines when putting the lesson on the board. When spelling by letter begins they can be taught as silent letters. It is with regard to them especially that the sound-lessons will help the spelling by letter. In sounding words that contain silent letters the pupil should often name them, as silent *e*, silent *a*, etc. They may also be asked to name words that have silent letters in them, naming the letters. An interesting review-lesson may be made by having part of the class write all the words they can think of that contain silent *e*; others, words that contain silent *a*; others, words that contain silent *i*, etc. Or, if their stock is very limited, they can all write words that contain silent *e*, *a*, etc. At the end of the allotted time let each tell how many of each kind they have written, and how many in all. They will be very eager to see who has written the greatest number. Then some may name and spell some of the words, the others comparing and correcting, and the teacher, writing all the words, as they are given, on the board. Then give a few minutes to correcting from the list on the board. This lesson can be made as short as you please by shortening the time given for writing the words. With a class of sixty pupils, such a lesson has been taken in fifteen minutes with good results. The last part can, of course, be omitted, and the slates or papers collected for correction, but the children like the correcting in the class, and—and so do I.

Incorporating some of the words of each lesson in sentences, should form a part of the work. It is well to dictate sentences containing the words, if they are able to write them. An interesting test-lesson can be made in this way also.

The oral spelling-match is always greeted with pleasure, if taken in the right spirit. I suppose nearly all will recognize the following, but to some it may be new. Choose two of the best spellers and call them leaders, or if they are large, Captains; let one stand on one side of the room, and the other on the other side. Then each one calls pupils to fill up the ranks, alternating, of course, until all are on the floor in two rows. It is amusing to see how sharp they are in calling the best spellers. The poor ones will invariably be left till the last. Then the match begins, and as each one misses he leaves the ranks and takes his seat. The side that has the largest number on the floor at the

close of the lesson is, of course, the victorious side. This way is preferable to simply having them stand in a row and "spelling them down," because you can make it as long or as short as you please, while in the last-named you are supposed to give words until they are all conquered. The pupils like the pleasure of choosing their spellers, too. I used to find it an inducement for study, as the two best spellers for the week were chosen for leaders.

For a written test, the following makes a change from the usual way. Tell each child, the day before the test, to pick out a word, or several words, that he considers difficult to spell,—the word to be chosen from those they have spelled, of course. At the lesson each pupil gives his word as the teacher calls on him, and the class writes,—the teacher writing the words as they are given, on a slip, so as to prevent the same word being given twice, as many will choose the same words to be given.

Through these ways, and many others, the spelling-lesson can be *robbed* of its dullness and *robed* in light.

PRACTICAL LESSONS IN THE KINDERGARTEN.

BY MRS. MARIA KRAUS-BOELTE.

XVI.

THE POINT.

In passing from the concrete to the abstract, *the point* is the last step in the analysis of the body, which represents, so to speak, the embodied corner of the circle. The point, being the smallest possible portion of the body, which,—more accurately speaking,—is merely imaginary, and cannot be taken from the body, is embodied, similarly as we embodied the edges and plane sides of the body. The point, being without size, has neither length, breadth, nor thickness. To indicate it, we make a "dot," the center of which would hardly represent the point. This invisible quantity we have to represent in the kindergarten with something sufficiently tangible for the child to take *hold of* and *work with*. As the *line* is embodied in a tangible way in the stick, ring and thread, so the *point* is embodied in what approaches it as near as possible, viz.: seeds, shells, small pebbles, etc. (if not too small), which *can be taken hold of*, and can easily be joined to *form lines*; and with such lines, again all possible kinds of figures can be represented on

the plane. Various kinds of seeds may be mixed, and the child has at once an exercise in *sorting* and *grouping* these into little heaps, according to their kind. To unite what is similar, to separate what is dissimilar, is a natural feeling or instinct in the human being resting on its entire mental disposition. Order is not possible without being master in the *art of sorting*.

An exercise of this kind we find in most of the kindergarten gifts and occupations. Remember the sorting of the different blocks and bricks, in the different kinds of tablets, in the sticks of various lengths, in the rings and half-rings, in paper-cutting (the parts), etc., etc. Whatever the child does, the aim to be kept in view should always be to make the habits of the mind and body orderly, practical, and logical. We all may remember, among the earliest pleasures of happy childhood, the picking-up of little stones and shells at the sea-shore or gravel-walk, or of blossoms, or the petals of blossoms, that had fallen off the trees or bushes in the garden, and arranging these in pretty outline forms. The love for the beautiful is to some extent gratified in this way. By making such outline forms, the child learns the fact that *the line* is not the ultimatum; for it may be resolved into a series of points. The mathematical idea of the point.—position without length, breadth, or thickness.—it is of course hardly possible to convey to a child, under the school-age, nor is it desirable to do so. But facts relating to points may be given, viz.: that *two* of them determine the direction of a straight line,—that the shortest distance between two points *is a straight line*,—that *a curve* is a line whose direction changes at every point, etc.; and all such facts receive their *illustration* in the kindergarten with this gift. A nearer approach to the region of pure mathematics would only stupefy and overload the young mind.

For material in this gift, *lentils* serve, perhaps, better than anything else, for they are nearly uniform in size and shape, and having only slightly convex sides, do not roll out of place and thus spoil the form. At first only *one* lentil (or any other seed) may be given, and its form and substance will be spoken of; its history is given, in the form of *a story*, perhaps; or an appropriate little song or rhyme, may be given. All this will help to endow it with life and beauty, at the same time opening to the child the wonderful book of nature. Also a seed may be *planted*, and the child observe its germination and growth. The children will be led to observe the square net-work of lines covering the kindergarten table, and then they may be directed to place the seed on the intersection of two lines. More seeds may be given, counted, and arranged in the different direction of lines. The corners of a square, oblong, triangle, pentagon, rhomb, rhomboid, trapezium, trapezoid, etc., are marked by seeds, and the distance between two seeds

always filled out by more seeds, thus producing *lines*, which show the forms more distinctly.

These exercises should, however, not be strictly carried out one after the other; but at times the children should be permitted to play with the seeds *as they please*, and the guiding word of the teacher will do much to make it all profitable as well as full of enjoyment. The forms of knowledge can, each, give again the starting-point for a "form of life" or a "form of symmetry." For instance: all the children have been directed to make a *square*; from this various forms are developed according to each child's own idea. Gussie will add a *roof* to it, and it is a little house. Joey has lengthened the lower horizontal line, and calls the new form papa's hat. Lawrence lengthens one of the vertical lines, and it represents a flag. Louis adds a triangle to each side of the square, and he calls it a pretty form, etc. Gradually the forms grow more decided as well as more complicated; a padlock, a pair of scissors, a staircase, a leaf, a bird, an animal, etc., are produced. Although such representations are clumsy in appearance, and by no means artistic, the child will be led, by being thus self-active, to grow more observant toward things surrounding us.

Also lessons in numbers may be given. For instance: each child receives ten or twenty seeds of one kind, or stones, or shells; these may be arranged at even distances in a line, one by one, and counted. Then they may be arranged by "twos"; next by "threes," etc. Addition, subtraction, division and multiplication may thus be taught, as may even be seen from the one example above given.

NOTE.—We have always considered it a great favor to our readers that Madam Kraus-Boelte, the leading practical kindergartner of the world, should consent to give the American elementary teachers her methods and counsel, and we append to the foregoing valuable paper some suggestions in regard to the kindergarten and of the noble work done by Madam and Prof. Kraus in their institution in New York city.

It is, strangely enough, a very general impression that the kindergarten is a school. This idea is, however, entirely erroneous; for the kindergarten and the school have different objects in view and are conducted according to different methods. It cannot be too often repeated that the most essential part of the whole kindergarten system is the methodical arrangement of the exercises and the games, and the explanations given by Fröbel to those who are to conduct them. To become acquainted with them all is a study; to apply them well, an art; to understand their significance, their effect, and the order and manner in which they should be given to the children, is a science. Nothing but a long and careful study of the system and its actual workings can give such a knowledge of it as will enable a person to practice its peculiar mode of instruction or to fully understand its many important points.

While the kindergarten will afford the child, previous to its entering the

school, the right occupation and requisite training for a course of regular instruction, the intermediate and advanced classes will be taught according to Fröbel's method, his ideas being more fully developed and more completely realized. "First the blade, then the ear, then the corn in the ear."

The "Practical Lessons" in *THE TEACHER* were not intended so much for kindergartners as for primary teachers. All the writings of Mr. and Mrs. Kraus, their lectures, and especially their exhibitions of kindergarten work before different teachers' conventions, have not only illustrated the use of the gifts and occupations in the kindergarten, but also their continuation in the elementary classes; the work gave a survey as well of the method of the single occupation, as it showed the methodical progress according to the ages of the children. Moreover the institute of Mr. and Mrs. Kraus, in its entire range, is intended to afford continuous instruction for children between the ages of three and ten years. The divisions and classes are arranged according to the age of the children; third division for children from three to four years; second, from four to five years; third, from five to six years; intermediate class, from six to seven years; advanced class, from seven to eight years; elementary class, from eight to ten years. In this issue article XVI., *The Point*, is given; this gift has never been published, neither in Europe nor in America, and will soon appear in their *Kindergarten Guide*, with over a hundred illustrations.

In passing, it may be mentioned that Mr. and Mrs. Kraus were invited by the Superintendent of Instruction, Dr. J. H. Vincent, of the Chautauqua Teachers' Retreat and Sunday-School Assembly, etc., to present the kindergarten education. Says the *Chautauqua Assembly Herald* of August 18:

"Never before has instruction in the kindergarten inspired so much approbation in this section, as we have witnessed by the pupils and spectators who have been in Prof. Kraus' and Madame Kraus-Boelte's classes, consisting of primary teachers and mothers, either listening to the philosophical discourses of Prof. Kraus, or giving attention to Mrs. Kraus' practical explanations and illustrations as to how the various gifts and means of occupations might be utilized in the nursery, the kindergarten, and the primary school. The illustrations and explanations were accompanied with exhibits of the practical workings of the system, including singing and gymnastic games to be used by children from three to ten years of age. Besides these regular classes and exercises, Mrs. Kraus has held daily voluntary exercises with the children, taking them for one hour and a half into the woods each morning after children's hour, and there, in the grass or leaves, or sitting upon hillock, log, or stump, she has had delightful plays with them, singing, exercising in gymnastics, and telling them fairy stories to quicken imagination, stories from natural history to impart instruction and quicken an inquiring disposition touching nature, and moral stories for their moral culture. Long will these eminent and affable educators be remembered by the many who have enjoyed the pleasure of their instructions; they may also like to learn that the different lectures and lessons will be published toward the end of next month."—*Ed.*

— Reading maketh a full man; conference (conversation), a ready man; writing, an exact man.—*Bacon's Essays.*

A LESSON TO INTRODUCE PRIME NUMBERS.

BY MRS. IDA WHITSETT BLACK.

The class, who have not looked at the subject in the arithmetic, take their places at the blackboard.

Teacher.—"Write in a column the numbers from 1 to 20."

"John, how many units is the first number equal to?"

"Yes, one unit, or one 1."

"All write that equality opposite the 1." Thus: ($1 = 1 \times 1$.)

"James, how many in the second number?"

"All write as before." ($2 = 2 \times 1$.)

"Sarah, how many in the third?"

"All write as before." ($3 = 3 \times 1$.)

"Jane, how many in the fourth?"

"All write as before." ($4 = 4 \times 1$.)

"Does any one see any other multiplication that 4 is equal to?"

"Write it after the first." ($4 = 4 \times 1 = 2 \times 2$.)

The lesson goes on in this way till the whole column is finished, and the work of each stands thus:

$1 = 1 \times 1$	$11 = 11 \times 1$
$2 = 2 \times 2$	$12 = 12 \times 1 = 2 \times 6 = 3 \times 4$
$3 = 3 \times 1$	$13 = 13 \times 1$
$4 = 4 \times 1 = 2 \times 2$	$14 = 14 \times 1 = 2 \times 7$
$5 = 5 \times 1$	$15 = 15 \times 1 = 3 \times 5$
$6 = 6 \times 1 = 2 \times 3$	$16 = 16 \times 1 = 2 \times 8 = 4 \times 4$
$7 = 7 \times 1$	$17 = 17 \times 1$
$8 = 8 \times 1 = 2 \times 4$	$18 = 18 \times 1 = 2 \times 9 = 3 \times 6$
$9 = 9 \times 1 = 3 \times 3$	$19 = 19 \times 1$
$10 = 10 \times 1 = 2 \times 5$	$20 = 20 \times 1 = 2 \times 10 = 4 \times 5$

Teacher.—"Henry, read those numbers which are made up only of units." Henry reads.

"Mark them with a P. on the left side."

"Charles, read the numbers that are made up not only of single units, but of groups of units."

"Mark them with a C. on the left side."

The words *factor*, *prime*, *composite*, are now explained, or rather the meaning of each is drawn out from the class, by questions, as,—

"What is a factory? Then what do you think a factor may be?" (A person or thing that makes,—lead them to some such definition as this.)

"What numbers in that column *make* other numbers?"

"Then, if I say that some of those numbers are *factors* of other numbers, which do you suppose I mean?"

"Read the factors of each of the numbers marked P." "Of each marked C."

"What difference do you notice between the factors of those two sets of numbers?"

In a similar manner lead them to see the meaning of *prime*, from *primer*, *primary*, etc., and of *composite* from *compose*, *composition*, etc. and then say,—

"Which of those sets of numbers should you suppose would be called *composite*, or *made up*, and which *prime*?" Nearly all will answer at once.

Teacher then goes on to ask,—

"What numbers can those prime numbers be divided by (without any remainder, of course)?"

"What can each composite number be divided by?"

By this time the class will be ready to give an accurate definition of a prime and a composite number, and of a factor. (Prime factors can be just mentioned, as a matter of course, if the lesson be not already too long.)

"For the next lesson continue the list of numbers from 20 to 100, placing the prime numbers in one column, and the composite, with as many sets of factors as possible, in another."

"Also write out a definition of *factor*, *prime*, *composite*."

This table of prime and composite numbers should be kept by the pupils, and used as the basis for farther talks about factors; *i. e.*, divisors and common divisors, and their correlatives, multiples, and common multiples, and so on to G. C. D. and L. C. M.

These subjects should *never* be given to children to study from the book; such a study is sure to lead to confusion and misunderstanding. They should be drawn from the children by skillful questions, answered from their own inspection of the tables they themselves have made. The investigation into the peculiar properties of the numbers they have themselves set down, has a personal interest about it that no study of the printed book can have. Knowledge gained in this way becomes truly their own, a possession held by a far stronger tenure than that of definitions and rules committed to memory, and explained to them by others.

Propositions, clear and simple as daylight, when seen by children with their own eyes, often become painfully obscured when offered to them in the words of others.

WRITING-LESSONS FOR LITTLE FOLKS.

BY LYMAN D. SMITH.

I.

How shall we interest these little folks in the writing lesson? Let them *write*.

Children like to talk, and next to talking comes this wonderful sign-language, writing. Let the little folks write often to learn to write, as you let them talk often to learn to talk, and read often to learn to read. But when you hear them talk or read, you are ready to prompt them, so that they will not fall into wrong practice. They need just the same care on your part when they write. Watch their fingers. Prompt them when they make the written signs, as you do when they make the spoken ones. Written language should follow very close to spoken language, with the child. He has to repress his voice in a great measure when in school. His mind is bubbling over. Let some of this mental energy work out of his fingers. Let him write as often as you can; never to tire him; never in a hap-hazard way; but under your eye, with care, with thought, with interest.

I know of no elementary branch into which more life and interest can be put, than the writing. It gives children something real to do. It is visible. Above all, it can be read. A child's first writing is to him truly wonderful. Do not confuse the child's mind with theoretical analysis, nor give him fragments of letters to write. The favorite method of teaching writing seems to be, first, a wearisome practice on elementary lines and fragments of letters; next, a tedious drill on isolated letters and disconnected words; and finally a monotonous procession of copy book saws and proverbs. This dull routine has robbed writing of its highest charm as a medium of expressing thought, and has placed the greatest obstacles in the way of both teacher and pupil. How would it seem in reading, if for many months the child was required solely to articulate letters, syllables, and words disconnected from any thought? Whatever might be his gain in enunciation, would be at the expense of all natural effort and interest.

Make the writing more a natural process. Give your pupils at the start a complete idea, a whole letter. As soon as they have learned a few letters, let them build up little words; and as early as possible let them write easy phrases and sentences. Let children write thoughts as you let them read thoughts; and give them something interesting to write, as you give them something interesting to read. Their writing

thus becomes a language to them, the same as their reading and speaking.

Talk to the children a great deal about the writing. Tell them about the letters, so that they will feel acquainted with them. Help them to see how much like the printed signs the written ones are. Write the letters on the blackboards, and attract the eye of every pupil by what you say about them.

The analogies between different letters will be a fruitful theme. We take the little dotted letter first, and study it, and when the children once learn to make it, they have only to double it and leave off the dot, and they have a second letter, *u*. Then again, the teacher takes small *n*, and shows the children the two parts of the letter. They learn to know these parts, and how to make the letter from them. The teacher tells them if they just double the first part of *n*, and add to this the last part, they will have another letter, small *m*.

In this way children will get to be as sure of each letter they write as they are of each word they speak. It is possible to educate their minds far ahead of their fingers; but the latter will catch up, and will soon do better work for the child's knowing more about it. Illustrate freely on the blackboard; associate pleasant ideas with the letters; make the writing always a recreation to the child,—never a task.

PROGRESSIVE STEPS IN THE STUDY OF MUSIC.

BY W. S. TILDEN.

II

In the scale-studies, thus far, we have considered the scale as a series commencing with the key-note and ending with its octave, either ascending or descending; the ascending series always ended at **1**, the descending at **1**.

But it is possible to continue the descent below **1**; and we have now to learn sounds which are said to belong to the *lower octave*. In this case the key-note **1** is to be considered in relation to sounds which lie both above and below it, as a center around which they all revolve. As it is sometimes expressed, the key-note is a sort of *home*, from which we set out in either direction, and to which we return. The sounds lower than **1** are distinguished by a dot placed under the figure. Taking,

now, the pitch of the key-note as high as the E or F of the piano, sing the following by imitation :

1	2	3	4	5	5	4	3	2	1
7	1	6	5	5	6	7	1		
5	1			5	1				

The exercises for thinking sounds will now be taken with this extended scale, as described in the last paper. The diagram will appear as in the margin. The small figures in the exercises stand for sounds to be thought of ; the large figures for those to be sung. The teacher places the pointer firmly *upon* that figure in the diagram corresponding to the sound to be sung, and at the side of those that are to be thought of.

1 2 3 4 5	5 4 3 2 1	1 7 6 5	5 6 7 1
1 2 3 4 5	5 4 3 2 1	1 7 6 5	5 6 7 1

5 4 3 2 1	7 6 5	5 6 7 1	2 3 4 5
5 4 3 2 1	7 6 5	5 6 7 1	2 3 4 5
5 4 3 2 1	7 6 5	5 6 7 1	2 3 4 5
5 4 3 2 1	7 6 5	5 6 7 1	2 3 4 5
5 6 7 1 2 3 4 5	5 4 3 2 1 7 6 5	5 4 3 2 1 7 6 5	5 3 2 1 7 6 5
5 6 7 1 2 3 4 5	5 4 3 2 1 7 6 5	5 4 3 2 1 7 6 5	5 4 3 2 1 7 6 5
5 6 7 1 2 3 4 5	5 4 3 2 1 7 6 5	5 4 3 2 1 7 6 5	5 4 3 2 1 7 6 5
5 6 7 1 2 3 4 5	5 4 3 2 1 7 6 5	5 4 3 2 1 7 6 5	5 4 3 2 1 7 6 5

SONG EXERCISES.

I.

1 2 3 2 1 7 1 • 1 7 6 5 6 7 1 •

Hear the echoes, clear and long, Answer to our morning song.

II.

1 3 2 1 1 2 1 7 7 1 1 2 3 2 •

1. The hol---i- days are gone at last For little Master Jack;

0 2 3 2 1 1 2 1 7 6 5 5 6 7 1 • 0

Long time he's been at home, and now To school he's going back.

Sowing and Reaping.

2. So make him neat, and brush his hair,
And then to school away ;
A time for all things may be found,
For work as well as play.

III.

1 •	7 1	2 •	2 0	2 •	1 2	3 •	• 0
Morning -	ing is	com -	ing,	Stars	fade a -	way - - -	- - -
3 •	2 3	4 •	3 0	2 •	1 7	1 •	• 0
Far	on the	hill -	tops	Glim -	mers the	day - - -	•

2. Brightly the dew-drops
Gleam on the grass ;
Bees to their labor
Hum, as they pass.

METHODS OF STUDYING THE SONG - EXERCISES.

1. Point the sounds on the diagram in the order they occur in the song.
2. Beat time, and speak the time-names.
3. Sing the exercises in time without beating.
4. Sing and beat time.
5. Sing the song with words.

SOWING AND REAPING.

BY "STELLA."

"They that sow in tears." The teacher read no farther. This was the verse in her daily devotional exercise-book for that day ; the one on which her school was to commence. She thought over her past life, and studied her future for a few moments with an almost painful intensity. It was to be a great change for her, coming here from a city home and a pleasant, well-appointed city school, to this, a country town far up among the mountains of Vermont, where her home was to be for a year ; and her school here was an ungraded one, numbering some forty or more pupils, whose ages varied from eight to fifteen years. Was it a pleasant picture? She had come here to sow. Had she any mind to "sow in tears"? It was not her way to be very lavish with her tears ; she was a firm, decided woman, who knew just about how much she would be able to accomplish, under ordinary circumstances, in a given time, and so she decided to "wait and see."

At the hour for the opening of her school, she was at her post, and

was much gratified to find her schoolroom filled with a pleasant, cheerful group of scholars, each one having an intelligent, and the most of them a studious appearance. As time passed on, she found herself well pleased with her school. Nothing occurred to give her any reason to apprehend any friction. Each and every one seemed to be ambitious and industrious ; all listened carefully to her explanations, and when she introduced new methods of study. She was beginning to feel that she had reached "enchanted ground." A letter to her friends at home was filled with descriptions of her *more* than pleasant *home here*, where, from her window, she had so fine a view of the beautiful "Champlain," with its lovely islands and charming coves and inlets ; and just across, on the other side, the bold Adirondacks lifted their heads one above the other as though crowding each other to obtain a better view ; then, on looking eastward, there lay the long chain of Green Mountains, stretching from "Mt. Mansfield" to far below the "Camel's Hump." She then described her school, giving the names, even, of many of her most promising pupils, finding, as she here wrote, but one drawback ; *that* was a little habit of exaggerating that she hoped would not become very formidable. She closed her letter with the quotation : "Surely, my lines have fallen to me in pleasant places."

One morning, not far from the middle of the first term, there entered her school a young girl who had been absent from her home for several weeks among her friends, and who was to be, in the future, one of her scholars. She was greeted by all very warmly, and the teacher could see at once that she was a "born leader ;" and it proved that Helen C. needed careful watching,—not that she was idle, or remiss in her lessons, but there was a power in her possession, and *that power* was a governing one. The teacher soon learned that she was (unconsciously perhaps) given to exaggeration, and the use of *slangy* words,—not often in the teacher's immediate presence, but an occasional word, not quite approved of by the teacher, was spoken. However, it was hoped that by careful guidance and watchfulness, it might be (if it had become a real habit, even) overcome ; but when the teacher chanced to hear from her lips the description of such an "*awful*" escape as the following : "The horses came down the hill upon a dead run, and it took an awful pull of Jim to hold them. I was scared to death at first ; but when I saw Jim was so awfully scared, I began to laugh, and I asked Jim if my hair had not turned white, and that set him a-laughing, and we had an awful jolly ride all the rest of the way ;" which wonderful recital was listened to by her schoolmates, and received by them with shouts of laughter, her heart sank down, down, down,—laden with sorrow. Was *this, then*,—this slangy exaggeration,—to be so choice a morsel for her pupils ? And so she said to herself, the trace of the

serpent is everywhere, even *here*, in my fancied Eden. But she again resolved to "wait a few days and see." She had always possessed an instinctive dislike to slangy expressions, and during her entire school-life she never allowed anything that seemed to be in the least of that character to pass her lips, be it ever so popular with her schoolmates; and exaggeration had seemed to her no better or more excusable than a real *falsehood*.

How should she meet this enemy and overthrow its power; aye, uproot this noxious weed from her hitherto lovely school-garden? This question she pondered long, finally deciding that it must be dealt with in some form or other. She selected from the Scriptures, for the morning lessons, such passages as related to pure lips and acceptable words, dwelling upon the exact meaning of such. Then she watched every pupil carefully, that she might detect any approach to that which was false, never allowing any answer or description to be given only in the most simple and plain language. She placed a double guard over her own lips, and strove with her might to always clothe all her own words with purity and truth.

Soon a change came creeping into her school. Her youngest scholars seemed to understand her exactly, and she could see how careful they became in their manner of speaking, and many of the older ones seemed to feel the importance of overcoming this unpleasant habit. Indeed, all except Helen C. seemed to profit by the teacher's precept and example. She remained just the same, although perfectly respectful and scholarly. The teacher's patience was nearly exhausted with her, and, one day, being near a group of girls and overhearing the remark from Helen that the "old owl would be watching," she decided that some method of punishment *must* be resorted to. The teacher had always chosen to lead and guide, rather than to use any degree, even, of coercion; but now she must remind her by *some means* that there must be a limit to her use of words and expressions, and so she decided to try the effect of reducing her rank on her monthly report; and when she received her card, her rank in deportment was lowered ten! Of course this must have been a source of great mortification to one so proud and ambitious as Helen was; but there was no reference made to it, either by her parents or herself, yet the teacher was sure she could see some improvement in her manner of speaking. She was not so "fearfully cold," or "awfully tired"; but still it was a work of time with her, to give up so dear a habit entirely. The teacher did not fail to correct and reprove her when it was needful, and many times there was occasion for her to "sow in tears," leaving the result to be developed in the future.

When the end of the school-year drew nigh, as had been the custom

of former years, certain of the older members of the school were required to prepare essays or compositions, to be read the last day of the school ; and one was chosen to prepare a sort of valedictory, which was not submitted to the teacher for correction. Helen C. was chosen to prepare this paper. Her theme was this: "Step by step in renunciation we travel on, and only as self is put off is the divine put on." She showed a masterly appreciation of the subject, and the entire paper was a clear development of deep, rich thought, showing the danger of allowing ourselves ever to fall under the power of a doubtful or bad habit, and how hard it is for one to break away from the same, it being only accomplished by an entire renunciation of self. She referred to her own experience, giving some delicate hints as to the help she had received from her teacher, closing with these words: "Beloved teacher, accept our thanks for your kind and watchful care over our *words* as well as our acts, and for the patient, gentle love with which you have borne our waywardness ; may 'our Father' grant that from this school, which has been under your care and guidance for the past year, streams of purity and truth may issue, which shall make glad the 'city of God.'"

After the teacher reached her room that night, she turned the pages of her book, and read the remainder of the verse, "shall reap in joy."

NATURAL HISTORY IN PRIMARY SCHOOLS.

BY J. M. ARMS.

XI.

Wide as is the difference between the invertebrate and vertebrate, the teacher who has become familiar with the structure of the former finds that the latter is not wholly a stranger, but, on the contrary, that it is only a more perfect expression of the general laws already known to her through the study of the lower forms.

The most fundamental of the distinctive characters of these two great divisions of animals were shown, at the first lecture upon vertebrates, by a blackboard-drawing of a transverse section of an invertebrate, and by alcoholic specimens of cross-sections of the lamprey-eel. In the former it was seen that all the organs of the body were contained in a single tube, while in the latter the viscera were inclosed in one tube, and the spinal-cord and brain in another, the two being separated from each other by a gelatinous rod-like organ, called the notochord, the first form of a vertebral column.

The teacher finds her interest steadily growing if she begins with the little lancelet, the lowest vertebrate yet discovered. Though without a brain or a chambered heart, ears, or limbs, this poor little fish is, nevertheless, entitled to the name of vertebrate, as it possesses a notochord. Passing from the lancelet, and lamprey-eel to an examination of the shark, skate, and gar-pike,—the last of which is a modern representative of the ancient fishes,—the teacher finds that the gelatinous notochord is gradually replaced by a cartilaginous spinal column, though it is not till she comes to the order of Teliosts, or bony fishes, as typically represented by the perch, that she sees the true bony skeleton.

An observation-lesson may be given on the perch. The children will observe that the long body is enveloped in scales, which are covered by the outer skin or epidermis in such a way that each scale looks as if it were in a tiny bag. It will be interesting for the children to compare these scales with those of other fishes. On either side of the neck an opening will be seen, and looking into it, the children will discover a row of little arches, bearing gills, and between these the gill-slits or clefts. A bristle passed in at the mouth will come out of one of the slits, proving that there is a direct communication between the mouth and the branchial chambers. These clefts and arches are an important characteristic, as every vertebrate possesses them at some period of life. The children may next try to find the two pairs of fins which correspond to the limbs of higher vertebrates, and which serve as balances. In a living perch they may watch the rapid and graceful motions, which are chiefly effected by means of the tail; or, by dropping some food into the water, they may observe that the jaws of the fish move up and down, instead of sideways, like those of the lobster and grasshopper.

The nearest relatives of the fish are the amphibia. The mudpuppy, or *Menobranchus*,—living specimens of which were sent from the West for Professor Hyatt's lecture,—becomes an object of especial interest to the teacher, as it shows the resemblances of the fish and the higher amphibia, or the frogs and toads. In the shape of its body, and in retaining gills and gill-slits throughout life, the *Menobranchus* is like the fish; while in possessing limbs and a scaleless skin, it resembles the amphibia.

The water-newt or salamander represents a more advanced stage of amphibian development; for while it keeps the fish-like tail, it loses its gills at maturity, and breathes by means of lungs.

At last we come to the frog, but we will not observe it first in its prime, but rather as we find it in its infancy. Almost every child watches with delight the changes that transform a little tadpole into a frog, though it is only the maturer mind that comprehends the wondrous

law of embryology that governs this transformation. The children see the wee animal soon after it emerges from the egg with its round body, long tail, and plume-like gills. In time they discover two little buds near the tail, and while they watch these grow into limbs, two other buds appear, and develop into the four limbs or arms. Meanwhile, the gills have been growing smaller, and the tail shorter, till finally, much to the children's amusement, both disappear, and in place of their water-breathing tadpole they have an air-breathing frog.

If a few of the eggs have been kept in a warmer place, and have, therefore, developed under different conditions, the children will have found out for themselves that tadpoles do not always grow into frogs in precisely the same time, or the same way, but that their development is greatly influenced by physical causes.

When so much knowledge of the early life of the frog has been gained by the faithful use of the eyes, the teacher has reason to be satisfied with her children's work, though she herself has learned much more while watching the wonderful development. In the young tadpole she has recognized the fish-like form of the *Menobranchus*, and in the tadpole with limbs and tail she has seen the form of the water-newt. The life-history of the frog has been to her an epitome of the life-history of the class to which it belongs, its transient embryonic stages finding permanent representation in the adult forms of the lower amphibia.

It is because this embryonic development is open to observation, that the class of amphibia is to the teacher one of the most instructive in zoölogy.

ZOÖLOGY FOR THE LITTLE ONES.

BY CLARABELLE GILMAN, JAMAICA PLAIN.

IV.

THE HYDRA.

What is the hydra?

Where can we get it?

How can our pupils study it?

These questions must be answered before the lesson outline can be given, because few people, probably, who have not had a scientific course in zoölogy, would either know the hydra if they saw it, or, perhaps, have ever heard of it.

First, then, what is the hydra? Not a relative of the spider, that we

took up last, surely. No, we must go back now, and next to the sponge in the series of typical animals, we find this tiny fresh-water hydra. A little hollow tube or bag, bright green or brownish in color, with an opening at one end forming the mouth, around which are from five to eight delicate filaments used as tentacles, while by the other end of its body it attaches itself to various objects ; so small that it can be studied only with a magnifier, though it may be seen without the glass, yet so full of life that no minute worm that may serve it for food can elude its grasp. This is the hydra. The figures, however, found in the works on zoölogy and in No. V. of the *Science Guides*, give a better idea of its appearance than any description can.

Now where are we to find this little creature, and how shall we obtain it for study? We must look for it in fresh-water ponds, or in pools of stagnant water. Here is one way of getting it.

We tell the children that we are going to look for a new animal, one that they have never seen, and invite some of the older ones to join us in the search, thus gaining their interest in the hydra in advance. Then, provided with glass jars, we set out for a walk to some of the pools in the meadows, where we fill our jars with water, and also put into them a few of the water-plants. Allowing a little time for the hydras to expand after being placed in the jars, we carefully examine the stems and roots of the plants and the under side of the leaves for the tiny sacs of green and brown with their delicate border of tentacles. We may not find them in the first pool, nor in the second ; possibly not even in the third, either because the hydras really are not there, or because our eyes are not well-trained in observation ; but we shall surely discover them at last, if we persevere, and we shall be well repaid for all our efforts.

Now that we have the hydra, a most practical question presents itself: How shall a school of fifty or sixty children study this little creature with the magnifying-glass without the teachers' neglecting other work to give them assistance?

If half-a-dozen magnifiers, and as many watch-crystals or little shallow dishes can be procured, the question will almost answer itself ; if so many glasses cannot be had, more time will be required, that is all. The jars containing the hydras may be kept near a sunny window in the school-room, and the water in these jars should be often changed in order to keep the little animals in health. The teacher must herself become thoroughly acquainted with these new inmates of her school-room, and then many ways will suggest themselves in which to afford her pupils the opportunity of studying them. The scholars may be divided into groups of six or more, according to the number of lenses, and we are much mistaken if they will not beg for the privilege

of coming before school and staying after school, perhaps even of staying in at recess, for the sake of using those fascinating glasses. When little brains are tired and need recreation for five minutes, the group whose turn it is to examine the hydra will consider theirs the grandest fun of all.

There will be some of the children, too, if the class are not too young, who will take pleasure in making little pictures of the hydra in the different shapes that it assumes. If the teacher will give them some help in a short drawing lesson of the most practical kind, this exercise may be made a general one for the school, and will increase the value of the zoölogy lessons tenfold. Let the drawing be made simple enough at the beginning, and children enjoy nothing better than drawing outline sketches of what they see; and there is positively nothing that can take the place of this as a means of fixing forms in their minds.

Whether each group be allowed to report to the school directly after the examination of the hydra, or all general conversation upon the subject be deferred until all the scholars have become familiar with it, the chief points of the lesson may be included under these four questions, which should be put upon the blackboard *one at a time*: What is the hydra? Where does it live? What can it do? How do new hydras grow? The answers to the first and second questions have been already suggested, and will be given so promptly by the children that we pass at once to the third,—What can the hydra do? Now we have the record of the children's own observations.

"It can stand on its head." "It can draw itself up and stretch out again." "Sometimes it crawls like the canker-worm, and sometimes it gets along by turning somersaults." "If you stir the water or touch the hydra when it is stretched out like a thread, it draws itself up into a little speck of green." When a worm comes along the hydra catches it with its tentacles and stings it so that it can't get away, and then swallows it, no matter how much it wriggles."

But we must have a little talk about these curious tentacles.

"Where does the hydra get its food?"

"In the water."

"Then it has to go fishing. What do you take when you go fishing?"

"A fish hook and a line."

"Is there not something else you will need?"

"Oh, yes; a fishing-rod."

"How many fishing-rods do you think the hydra has?"

"I guess,—seven or eight."

"What do we generally call them?"

"The tentacles."

"Yes. This hydra that I have here has seven rods, and I don't know how many hooks and lines. Each tentacle is a fishing-rod, and here and there, all over the tentacle, are little bunches of pockets. Every pocket holds a coil of line, and each line, instead of a hook at the end of it, has three spears on it just where it comes out of the pocket. These spears carry little drops of poison that kill the tiny worms, even if they escape from the hydras, which they can't often do."

The children will be ready with one answer to our last question, for they have seen the little buds grow into young hydras that afterwards pulled themselves free from their parents. If M. Trembley's experiments cannot be repeated, the story of them can be told, showing that if we cut one hydra into many pieces, each piece will become a perfect individual.

The limits of this article allow scarcely a hint at the interesting facts to be learned about our little friend, but if it shall incite some teachers to study for themselves, and to bring the hydra before their pupils, it will have done its work.

After our little ones have the idea of the sac-like hydra, its tentacles and thread-cells, clearly in mind, we show them the beautiful Neptune's beard, or other marine hydroids, and they will quickly grasp the thought that these are colonies of little creatures, each one closely resembling the hydra.

PRIMARY SCHOOL OCCUPATIONS.

THE STUDY OF LITERATURE

.IV.

THE STUDY OF LITERATURE

Should be begun in the primary school, and carried on through the successive grades. In the primary school it should take the form of memorizing short selections of poetry or prose from standard authors, to be repeated in concert by the school. This concert-exercise should have a place in our school "examinations" as well as the individual recitation.

Next to the influence of those about us is that of the men and women in the books we read. If from the impressible days of childhood the memory has been stored with pure and elevated thoughts, the mind will instinctively turn away from that which is coarse and low. This suggests that the difficult problem of the reading of the young must be

treated from a business point of view. We must carefully and deliberately *plan* to teach such things as will interest the child in good reading *before* the taste for trashy reading is developed.

In carrying on this work in the primary school, let us remember that the selections must be adapted to the child's mind ; they must be within his comprehension. They should have literary merit, that, by frequently repeating them, the child's own forms of expression may be elevated. The selections must be worth remembering for life. We remember longest that which we learn in childhood. Parents, committee, and superintendents should demand that the pieces learned for "examination" should be pure and noble in sentiment, graceful and beautiful in diction, teaching some definite truth.

We hear at present a great deal said about *moral* lessons for children, and it is a most encouraging sign that this demand for heart-culture is becoming more and more widely diffused among the people. Let some of our selections be adapted to cultivate the domestic affections ; to teach kindness to animals ; temperance, contentment, truth, patriotism, the nobility of toil ; and, best of all, to awaken aspirations for a better life. Tennyson, Wordsworth, Bryant, Longfellow, Whittier, Jean Ingelow, Lucy Larcom, Celia Thaxter, and a score of others have written beautiful child-poems, full of tenderness and truth, teaching these lessons in their own sweet way. The supply of material is abundant. With ourselves rests the responsibility of using or neglecting the means given us for elevating and ennobling our pupils.

Children enjoy these exercises. I have seen a school of factory-children, from six to ten years of age, eagerly lay aside books and lessons to recite "Little Brown Hands." Their faces were all aglow, and their little brown hands were quiet, as they repeated :

They drive home the cows from the pasture, -
Up through the long shady lane,
When the quail whistles loud in the wheat-fields
That are yellow with ripening grain.
They find in the thick waving grasses,
Where the scarlet-lipped strawberry grows ;
They gather the earliest snow-drops,
And the first crimson buds of the rose.

They toss the new hay in the meadow ;
They gather the elder-bloom white ;
They find where the dusky grapes purple
In the soft-tinted October light.
They know where the apples hang ripest,
And are sweeter than Italy's wines ;
They know where the fruit hangs the thickest
On the long, thorny blackberry vines.

They gather the delicate sea-weeds,
 And build tiny castles of sand ;
 They pick up the beautiful sea-shells,—
 Fairy barks, that have drifted to land.
 They wave from the tall rocking tree-tops,
 Where the oriole's hammock-nest swings ;
 And at night-time are folded in slumber
 By a song that a fond mother sings.

Those who toil bravely are strongest ;
 The humble and poor become great ;
 And so, from these brown-handed children,
 Shall grow mighty rulers of state.
 The pen of the author and statesman,—
 The noble and wise of the land,—
 The sword, and the chisel, and palate,
 Shall be held by the little brown hand.

How all the noise and fret of the school-room die away, and a quiet restfulness falls upon teacher and pupils, as the little ones, ready for the pleasant good-night that should always close the day's relations, repeat :

Evening is falling to sleep in the west,
 Lulling the golden-brown meadows to rest ;
 Twinkle like diamonds the stars in the skies,
 Greeting the two little slumbering eyes.
 Sweetly sleep ; Jesus doth keep,
 And Jesus will give his beloved ones sleep.

Now all the flowers have gone to repose,
 Closed are the sweet cups of lily and rose ;
 Blossoms rocked lightly on evening's mild breeze,
 Drowsily, dreamily, swinging the trees.
 Sweetly sleep ; Jesus doth keep,
 And Jesus will give his beloved ones sleep.

Sleep till the flowers shall open once more ;
 Sleep till the lark in the morning shall soar ;
 Sleep till the morning sun, lighting the skies,
 Bids thee from sweet repose joyfully rise.
 Sweetly sleep ; Jesus doth keep,
 And Jesus will give his beloved ones sleep.

— We grow like what we contemplate. Let us, therefore, contemplate the True, the Beautiful, the Good.

— When the teacher fails to meet the intellectual wants of a child, it is the case of asking for bread and receiving a stone ; but when he fails to meet its moral wants, it is giving a serpent.—*Horace Mann.*

OUR NOTE-BOOK.

AUTUMN LEAVES.

BY HUGH F. M'DERMOTT.

'Tis now the hour when rays decline
 From withered leaf and broken vine,
 When birds fly homeward from the
 hill,
 And leaves drop darkly on the sill.
 Oh, leaves, that vernal days recall,
 Why do you fall,—why do you fall?

Across the woof of dusk and shade
 The tawny elves disport and fade;
 While whispers, swathed in love's
 command,
 Would lure me hence to fairy land.
 Oh, leaves, that dear old friends recall,
 Why do you fall,—why do you fall?

The moaning winds bring thoughts to
 me
 As lonely as the leafless tree;
 Like autumn leaves, my day is passed,
 And pathless night is overcast.
 Oh, leaves, that life's proud hopes re-
 call,
 Why do you fall,—why do you fall?

I know, alas! — now that I am old,—
 To me the world is strange and cold.
 What by-gone joys it will renew
 To join my friends beyond the blue!
 Oh, leaves, that bosom friends recall,
 Why do you fall,—why do you fall?

Come, silent Death, and take your fee,
 For it is something to be free,—
 An element of sky and sea
 In all my soul's eternity.
 Oh, leaves, that dreams of Heaven
 recall,
 Why do you fall,—why do you fall?

Oh, joys of youth, and tears of age,
 There never yet was priest or sage
 That could return without regret
 To where his youth and manhood met.
 Shrines on my head the dead leaves
 fall,
 And the winds whisper: "God is all."

It has been our aim, from the beginning, to give the readers of THE TEACHER all the help in our power, by presenting the best approved methods of teaching in all the several branches required to be taught in the elementary grades. It will be, also, our purpose in the future to inculcate correct ideas upon the cultivation of the mental faculties in their true order by presenting methods of teaching that conform to correct principles of culture. The primary teachers should have the *true* principles of teaching young children constantly in mind in every exercise, and adapt their methods according to these fundamental ideas.

Correct teaching is based upon a knowledge of the mind and its faculties, which is derived from a careful study of the facts of consciousness. The mind is brought into relations with the external world through the medium of the senses, consequently the teacher should lead the child first to the observation of things around them. Sight and hearing are the special senses to be carefully and correctly cultivated. The "Object Lesson" is the means of cultivating the perceptions, for true *perceptions* are absolutely essential to the attainment of right *conceptions*. It is no easy task to train young children to state accurately and in logical order the exact form, color, size, and pro-

portion of even familiar objects, but this should be required daily, and little by little these advances, which must be by easy stages and adapted to the age and mental capacity of the learner, will secure accurate and systematic development of the higher faculties.

Incidental to this main purpose should be the secondary one of giving a large amount of knowledge to the pupils which is useful and essential to their growth and culture. Facts concerning the locality in which they live, of the elements of nature,—of water, air, plants,—of the occupations of life, of history; in fine, of everything that will give them an intelligent appreciation of the ends and purposes of human life.

From this brief statement of the requirements demanded of a primary teacher, it will be seen that it is a work that cannot be entered upon without professional preparation. To attempt to teach an elementary school without having mastered the essential fundamental ideas underlying the work, is almost a crime against those who are at an age of helplessness.

Judging from the number of anxious inquirers who apply to us for fuller information in regard to methods presented in the pages of *THE TEACHER*, there is a growing consciousness of the importance of the elementary teachers' work in all its details. We should be only too happy to reply to all their requests, did our time allow us to indulge in special correspondence, which it does not. The contributors to our pages are all active, busy educators, and kindly consent to give to the elementary educators of the country the results of their extended reflection and study, and also of their ripe experience upon the various topics of which they treat, but cannot afford time to turn aside and elaborate details for individual teachers. Send to the Editor your requests, stating your difficulties and the cheering results of your special successes in the use of special methods, and he will do all in his power to aid and stimulate the great body of elementary teachers who read *THE TEACHER*, by answering, in the Note-Book, questions which perplex, and publishing methods which have proved means of triumphs in the most important and difficult department of educational work,—that of the best training of the young in the first steps in knowledge.

SOME POINTS FOR YOUNG TEACHERS' MANAGEMENT.

First. Do not talk too much. "In the multitude of words there wanteth not sin; but he that refraineth his lips is wise."

Second. Always speak kindly to an angry pupil. "A soft answer turneth away wrath, but grievous words stir up anger."

Third. Never be sarcastic. "There is that speaketh like the piercing of a sword, but the tongue of the wise is health."

Fourth. Some pupils *expect* you to scold them. By all means, let them be disappointed. "Reprove not a scorner, lest he hate thee."

Fifth. Reprove and punish pupils in private; never personally in public. "Debate thy cause with thy neighbor himself, and discover not a secret to another."

Sixth. See nothing, yet see everything. Take immediate action on very few misdemeanors. They are not half so bad as your imagination makes

them. "The discretion of a man deferreth his anger; and it is his glory to pass over a transgression."

Seventh. At the same time, do not hesitate to act promptly when necessary. "A prudent man foreseeeth the evil and hideth himself, but the simple pass on and are punished."

Eighth. Don't worry. Teach under "high pressure;" govern under "low pressure." "Fret not thyself because of evil men."

Ninth. Never become discouraged, especially with serious difficulties. "If thou faint in the day of adversity, thy strength is small."

Tenth. "Withhold not good from them to whom it is due, when it is in the power of thine hand to do it."

—National Normal Reunion.

We copy the following pertinent hints to young, inexperienced teachers from the September number of *The Educationist*, Topeka, Kansas, of which George W. Hass is editor. We commend them to the attention of our readers:

"It is the first steps that are difficult. The first steps in the teacher's work are hard, and the mistakes or blunders cost. That which is simple and easy to the experienced may be difficult, almost insuperable, to the inexperienced. Columbus's courtiers could easily enough make the egg stand after he had shown them how. So after the young teacher knows how, it is easy. It is our purpose to suggest some things as to the 'how.'"

Says the novice, 'What shall I do, or where shall I begin?'

Visit the community in which your school is to be taught, a few days before opening. Call on and become acquainted with some of the citizens. Learn something of the sentiment concerning the school, something of what they deem the excellences or faults of your predecessors; also hear suggestions (for everybody knows how to run a school, and of course can tell you how), but be careful about promising to adopt them. Hear all and ponder all, but decide for yourself.

Be sure to go and see the school-house, and learn that all things are in order for work; the bell, the crayon, the rubbers, the blackboard, seats, stove fuel,—if cold enough to need fire,—in a word, everything that can add to the comfort and efficiency of the school. A single item omitted may produce confusion throughout the first day or more. For instance, suppose there is no crayon, and suppose you wish to write one or two important statements on the board, as the admirable rule, *Do right*. This little rule may furnish the basis of your appeal to your students on the first morning, and after, may furnish the means of order for the first two or three days,—because on the board where all can see; but alas, there is no crayon, and none can be had till neighbor Jones goes to town, and that won't be for three days. So you are weakened at the very outset, and simply through the lack of a cent's worth of chalk. Other lacks may be more serious. A good general looks well to his preliminaries; so a good teacher.

Caution: Don't take the word of a neighbor, or even a trustee. He can easily be mistaken, or may have a very different idea of *ready* from the true one. He may mean that the seats are all in, and the blackboards in order, or he may mean simply that the school-house is there, *i. e.*, that the boys have not whittled it down, nor the wind blown it away. You want to know more, namely, that everything is in order, "all things ready,"—and you want to know it for yourself, *i. e.*, from personal inspection, not from hearsay.

Negatively, in your intercourse with the patrons, don't put on airs. Don't assume to be better than other people, though you are the school-teacher, and have lived in the city or been to college and "know a thing or two."

Assumption and arrogance are an offence in anybody, but abominable in a teacher. Avoid them. In their stead, try to show good manners, good sense and a good heart, if you have them, and if you haven't, then get them as soon as you can. Remember, you are to be a teacher, and not a dandy nor a butterfly, but a pattern, a guide in every good word and work. If you show this latter spirit in these preliminary visits, your way is already opening to success."

The following "Miscellaneous" list is the conclusion of the list of books for a child's library, published last month :

Miscellaneous.—"Picture Teaching for Young and Old," by Janet Byrne \$1.50; Cassell, Petter & Galpin, New York. "Queer Little People," by Mrs. H. B. Stowe. "Grimm's Fairy Tales." "Arabian Nights." "Pilgrim's Progress." Stories (to be selected) from Edgar A. Poe. "Sintram and his Companions," and "Undine," by Baron de la Motte Fouqué. Household Fairy Tales: "Adventures of a Brownie," "Is it True?" and "Little Folks' Life," by Miss Mulock. "At the Back of the North Wind," "The Princess and the Goblin," and "Ronald Bonnerman's Boyhood," by George McDonald. "Mopsa, the Fairy," by Jean Ingelow. "Robinson Crusoe." "Swiss Family Robinson." "Æsop's Fables." "Hans Brinker, or the Silver Skates," by Mrs. M. M. Dodge. "Real Folks," by Mrs. Whitney. "The Young Emigrants," by Noah Brooks. "Little Women," "Little Men," and "Eight Cousins," by Miss Alcott. Hans Andersen's stories. "Dream Children," and "The Bodley Series," by Horace E. Scudder. "About Old Story Tellers," by Donald G. Mitchell. "Tales from Shakespeare," by Charles Lamb. "Greek Hero Stories," translated by Benjamin Hoppin. "Days of Bruce," by Grace Aguilar. "Rasselas," by Dr. Johnson. "Little Nell" by Charles Dickens. "Paul and Virginia." "Rab and his Friends." "Slim Jack, the Circus Boy." "Edward and Miriam" (a story of Icelandic Life). "Elizabeth, or the Exiles of Siberia," by Madam Cottin. "Vasco de Gama," by George M. Towle; Lee & Shepard, Boston. "The Seven Little Sisters that Live on the Round Ball that Floats in the Air."

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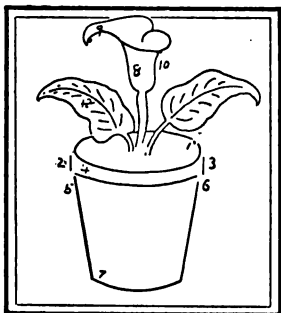
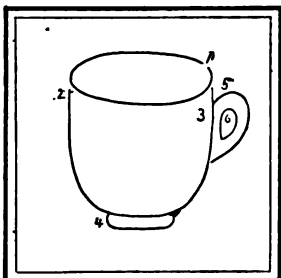
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THE

PRIMARY TEACHER.

VOL. IV.

NOVEMBER, 1880.

NO. 3.

ARITHMETIC.—SUGGESTIONS TO TEACHERS.*

BY MALCOLM MACVICAR, PH.D., LL.D.

The following propositions apply equally to every stage of the teacher's work, and indicate the *general method* which he should pursue both as regards himself and his pupils; hence they should be carefully studied and fixed clearly in the mind.

I. Let the work of each day be prepared as follows:

1. Master so thoroughly the lesson assigned to the pupils that you can dispense with the use of the text-book in the recitation, except when dictating examples for the pupils to solve. *Observe*, this involves

(a) Holding *all the facts* in the lesson in the mind as a *unit*.

(b) Perfect familiarity with the connection the lesson sustains to the pupil's previous work, and its bearing on his advanced work.

2. Notice carefully the *root thoughts* or important points in the lesson around which *details* are naturally grouped. *Emphasize thoroughly* these points in your teaching.

3. Select with great care all the points in the lesson that need illustration, and prepare a method of presenting each of these points before attempting to teach them.

Observe, that to be successful in explaining difficult points,

(a) Your illustrations must be simple and familiar, yet striking and varied.

(b) You must use small numbers which the pupils can hold in their minds without such an effort as will distract their attention from the point illustrated.

(c) You must present *each step* in your illustration *separately*, and in its logical order.

II. Let the work in each recitation be *systematic*, *definite*, and *pointed*, and let it be performed in a *spirited* manner.

* *Teachers' Manual*, published by Taintor Bros. Merrill & Co., New York.

To secure this result, the following must be observed

✓ **V. Mark out for yourself a general plan for conducting class exercises, and adhere to it, subject to such modifications as the conditions and surroundings of your class may necessarily demand.**

Such a plan should include at least the following :

- ✓ (a) A method of disposing, without interrupting your work, of questions or order that may arise during the recitation.
- ✓ (b) A definite time for pupils to present the difficulties they may have met in studying the lessons assigned to them.
- (c) A time and method for illustrating the pupil's difficulties.
- (d) A method of rapidly and correctly testing each pupil's knowledge of the work assigned.
- ✓ (e) A systematic plan for blackboard work, including order in going to and from the board, position at the board, form in which the work should be put on the board, and a method of correcting the work when finished.
- (f) A time and plan for oral exercises, and for written exercises upon the slate.

2. Hold your pupils rigidly, in class exercises, to the work assigned. Let no side or useless details divert your own or the pupil's attention from the real subject under discussion. This involves the following :

- (a) The work assigned in each advanced lesson includes, without being stated, an explanation, when required, of any point previously discussed.
- (b) Explanations of difficulties, either by the teacher or pupils, are class exercises ; hence, each pupil should be held responsible to reproduce such explanations at any time after they are given.
- (c) While the strongest encouragement and fullest liberty should be given to the pupils at the proper time, and under proper restrictions to ask questions on the point under discussion, all useless and trifling questions, and such as do not have direct reference to the subject, should be absolutely excluded.

III. Let special attention be given to each of the following points :

1. *The pupil's use of language.*

- (a) Do not allow the pupil to use contracted statements or forms of expression that are grammatically or otherwise incorrect.
- (b) Encourage him, by suggestions, to use a variety of words to express the same thought ; also, to observe closely the special meaning of business-terms and expressions.

2. *Practice in making well-formed figures.*

- (a) In primary classes constant practice should be given in making figures, both on the slates and blackboard. The pupil should

be required to imitate closely the Script and Roman figures. Each exercise should be copied neatly on the slates, and the teacher should carefully examine the work, and commend what is well done.

- (b) In more advanced classes exercises should be given frequently in writing on paper the solutions of examples. This will give practice in making figures and in arranging the work in neat form.

3. *The arrangement of work on the slate, blackboard, or paper.*

- (a) When a new subject is commenced, illustrate on the blackboard the way in which the work may be written, and insist that each pupil place his work on the board, slate, or paper at all times, in a systematic and neat form.

- (b) Let the pupil's work on the blackboard or slate be always carefully noticed. Commend what is well done, and require what is not well done to be rewritten.

4. *The oral and written solution of examples.*

- (a) Avoid stereotype forms. Encourage originality in the method of analysis and solution.

- (b) Insist upon both accuracy and expertness. To secure these results, exercise the pupil frequently upon abstract numbers and simple examples which he can solve readily, holding him to doing the work in a given time.

- (c) Insist, when reading examples for solution, that the pupils follow you so closely that short ones need never be read more than once. Insist, also, that no book be used when a pupil is explaining an example on the blackboard.

IV. In solving examples, let the pupil be required, in every case, to master the thought before attempting the solution. Let him also, in wording his analysis or solution, be required to guard carefully against the use of set forms of expression.

In carrying out the requirements of this proposition, observe the following:

1. To master the thought in an example, let it be read with great care, thus:

- (a) Determine the exact meaning of each technical term used.
- (b) Locate clearly in the mind the nature of the transaction and the relations of the parties concerned, or the peculiar conditions stated.
- (c) Examine carefully the quantities or numbers given, and notice, from the nature of the transaction, the relations of these quantities through which the required result can be determined.

2. In giving either an oral or a written solution of an example, the pupil should be required to state :

- (a) What is given and what is required.
- (b) The relations of the given quantities from which what is required can be found.
- (c) The steps that must be taken in their order, and the process that must be used to obtain the required result.

In making these three statements, *clearness*, *accuracy*, and *brevity* should be the *only conditions* imposed.

LET US STUDY THE CHILDREN.

BY MRS. R. R. BIRD.

III.

[Continued from November No., 1879.]

General Opinions, Deduced from the Observation of Children in general.

The young child of cultured parents possesses an advantage over the one of the ignorant and uncultivated. He needs not to go to school early. All the latent faculties of his little new-born mind wrapped up within the envelope of his brain as snugly as the root, the trunk, and the leaves of the oak within the acorn, and as undeveloped, too, as those of the veriest savage, naturally grow more rapidly than those of the child of the uncultivated. He inherits strong tendencies to mental growth from his parents ; finds, from the very first, the fruits of culture in all his surroundings, so that culture is the very air he breathes. He becomes an heir to the results of the thought and experience of his predecessor, and may start on his onward course knowing and wishing to know, and yet be every whit a child. He need not put away childish things ; he may run and jump and climb and shout, and yet breathe in wisdom, for it lies all around him. Knowing and wishing to know is a law of his being, and *wishing to know* is the *beginning* of mental growth. Shall such go early to school, when an intelligent mother, by taking a few moments at a time at different parts of the day, can easily guide him into all the different paths of knowledge laid out by School Boards for young children, and into a thousand little by-ways not so much as thought of by them ? And yet such are sent to school, to be taken care of, to be kept out of the streets, which seems, of course, a plausible reason.

Just think of the hosts of young children, — children of intelligent parents, as intelligent as the teachers by whom their children are taught, —who are confined in school-rooms for five hours a day, where “no noise, no motion,” is the constant requirement, so much so that a penalty is inflicted for the accidental dropping of a pencil, or for an involuntary outburst of a long-pent-up stream of nervous energy ; where they learn counting, adding, subtracting, and multiplying numbers below ten, together with the rest of the matter composing the substratum of knowledge appointed by School Boards ; and where it is many times mechanically inserted into their little brains, only to make room for succeeding strata to be, perhaps, as mechanically inserted ; until at last their brains are packed and crammed as full of knowledge as a well-filled tooth with gold-leaf. Alas, the brains ! Alas, the bodies, so early deprived of all the means appointed by God to build them up in His own image !

Not that we would always find fault with the quality and quantity of the matter composing the different strata ; indeed, the studies of the various courses appointed by the Boston School Committee are wisely chosen, and many a mother and private school teacher would do well to be guided in a great measure by the choice ; but we are pained to see that in order to acquire these studies on the part of the scholars, physiological laws seem to be almost entirely ignored : “ ’Tis true, and pity ’tis ’tis true,” that the whole running, rushing current of nervous energy in children, both of private as well as public schools, has to be checked, pent up, arrested in its course, that they may learn the daily lessons of the sub-stratum, which if properly taught, — taught in conformity with the laws of the opening mind as it gladly reaches out for food, could be learned in a little more time than it takes the children to chase the butterflies and catch them under their hats, and, too, with the same eager spirit of pursuit and exultant glee.

And yet we would by no means condemn the gathering together into schools of all the forces of little children whose homes are unfavorable to their mental, moral, and physical welfare. Such would be far better off in school. Yet allowing that, would it not be still better to invite them to playgrounds in the summer and play-rooms in the winter, where, amid all their healthful activities of body, might be scattered little crumbs of knowledge to feed the open mouths of their minds, and where could be sown the seeds of purity and truth which might germinate and take root in their little souls ?

Ah ! how gladly would we see our primary schools of different grades converted into playgrounds and play-rooms, — one long stretch of recess, broken by occasional sprinklings of school-sessions ! In these playgrounds, there should be sand-heaps for the children to dig in, trees

and miniature gymnasiums with which they might exercise their climbing-limbs, hoops, jump-ropes, balls, and every conceivable game which children enjoy. Then we would send out our missionaries, in the form of nursery-governesses, into the highways and byways of our cities, to gather into our playgrounds all the little children, many of them neglected and uncared for perhaps, who seem to be looking round in search of a good time. They would only have to say, "Ha! ha! boys and girls, come along with us; we'll show you where you can have lots of fun!" And they certainly would follow. We would invite not only the children of the poor, but those of the well-to-do, into our playgrounds to be taken care of by nursery-governesses. Yes, that is what young children need, — simply to be taken care of. Almost every mother knows that that is her chief object in sending her children to school. You have heard them say so, have you not?

Then let our schools meet that universal demand, and the manner of conducting them be based upon it. To take care of children, is to care for them physically and morally as well as mentally; to allow them to play without injury to themselves, if possible; to direct their sports; to seize opportunities to guard their manners and morals; and to impress and instruct them. Do you fear they would not learn anything? Why, nearly all the wisdom taught in our primary schools could be bountifully scattered amid their sports, so that the children could gather it up for themselves and carry some home to their families. They would gain physically, morally, and mentally, and yet in such a spontaneous, natural way that one could scarcely put his finger upon any particular method or means by which the advance had been made. But more of this in another paper.

WRITING LESSONS FOR LITTLE FOLKS.

BY LYMAN D. SMITH.

II.

The writing-lesson in the lowest grades must be devoted chiefly to position and pen-holding, until every child has some practical knowledge of both. After this is accomplished it will require incessant care to have your pupils accustom themselves to the right position, and acquire the habit of holding their pens properly. If you have a great deal of perseverance, you will have ample opportunity to expend it before all the rebellious fingers learn to hold the pen. As a special teacher I find all I can do in attending to one-half the class, if the

regular teacher takes the other half and shares in the work. We go right among the pupils and place the pens or pencils in their hands, showing them over and over again how to put each finger in the right position to hold the pen easily. We draw the pupils up from their desks if they are stooping over their books, coaxing, admonishing, and encouraging them. I find all this to be up-hill work with a class, and it is sometimes difficult to enlist the teacher's hearty coöperation. "What! Go right among the children, lifting them up, turning them round, and placing their fingers over and over again?" exclaim many. Yes, dear teacher, there is no royal way to start children in writing. You must begin with position and pen-holding, and come right down to individual work. This may all be very tiresome and monotonous, but it is of absolute necessity to the advancement of the pupil. His will must be educated to control his action; and even in this homely task you are working upon those mental forces the development of which is the sole aim of all education. I have produced the best results in going right among the children, and helping each one to help himself. Working in the aisles, leaning over the desks, establishing a personal relation with each child, will influence the children far more than keeping a dignified position before the class.

There are physical differences and individual faults, all of which you will notice as you visit each child. Try to keep up the class-spirit while you are thus working. Let those who first learn to hold the pen or pencil correctly, assist the more timid and backward. The pupil behind them, or the one on their right and left, will perhaps require some assistance. The order of the class need not be disturbed, and all can be kept busy. Make comments on special faults for the benefit of the whole class. "Here are some little fingers that do not know how to bend. Give me the pencil and close your hand. Oh, these same little fingers can bend, after all! Now take the pen and try again to close your hand. That is a little too much. That is just right." Here is a very nervous child. The hand flutters and can hardly keep the pencil in its grasp. We shall have much to do in this case, but let patience have her perfect work. Here is a hand holding the pen as if in a vice. "Do you think, Ned, your pen will run away? No good writer ever pinches his pen in that style. Hold it so easily that I can pick it right out of your fingers. That is right. Now do not forget and go to pinching it again. Well, how funny this is! Here is a pen that has got tired, and has dropped right back in this little girl's hand. How many other pens have got tired and dropped back, too? Bring your pens up just front of the knuckle. Look at my hand and see how I slant my pen. Here is a hand turned way over to the right. That will never do. Keep your hand up, as well as your pen. I must give

you the penny drill," and a penny is placed on the wrist. "Do not let the penny roll off. I see a good many of you stooping over your desks, and all curled up as though you were very cold. Try to look as large as possible when you write."

Do not attempt much else until you have brought the class up in position and pen-holding. If pupils start wrong it is just as injurious to their writing as to their speaking. Bad habits must be noted and checked from the first. The pupil will unconsciously settle into a poor position. (His head will come down close to his book, as he looks sharp at the copy) His hand will turn over to the right before he is aware of it. His pen-holder will drop back in his hand. (His feet will wander out into the aisle, or get twisted around his chair, while his hand is occupied) Do not be discouraged with all these little faults, but work on patiently.

We would earnestly advocate early practice in writing for children, and make it to them a natural method of expressing thought. The earlier writing is taken up at school the greater are the child's chances for acquiring a fluent handwriting.

NOTE.—To handle a class successfully in the writing requires much personal enthusiasm and energy. If you have no heart for the work the lesson will be cold and unsatisfactory. You will not find it difficult to excite interest in your pupils when you strike the key-note yourself.

ZOOLOGY FOR THE LITTLE ONES.

BY CLARABELLE GILMAN, JAMAICA PLAIN, MASS.

V.

THE SEA-ANEMONE.

In this lesson we first carefully observe the sea-anemone, and then compare it with the hydra.

The essentials for the lesson are several open-mouthed candy-jars, some hydras, and some anemones. We will suppose that we have in one jar of sea-water a dark-brown anemone, a pure white one in another, a delicate pink, or a bright salmon-colored one in a third, and in the fourth several small ones of the different shades. In striking contrast with these are some hydras in their jar of fresh water. We are not so fortunate as to have an aquarium; if any of our

readers have, we congratulate them. They can dispense with the jars.

We are all familiar with the general appearance of the anemone, in pictures, at least, but we do not for a moment imagine that pictures can take the place of the anemones themselves. Pictures of horses, cows, and dogs, — animals that our pupils see every day, — may take the place in the zoölogy class of the living reality, which it would scarcely be possible to introduce into the schoolroom; but pictures should be used only for this purpose, to recall that which has been often seen; not to take the place of the living creature. The study of pictures is a very different thing from the study of life, and in this fact we find one of the strongest arguments for commencing the study of zoölogy with the lower invertebrates. Many of the lower animals may be kept in the schoolroom, where the children can watch them and become acquainted with their habits, while most of the vertebrates must be studied at second-hand. So we will not let the difficulty of obtaining living specimens deter us from giving our pupils the full benefit of their zoölogy lessons. Few of us can gather the anemones for ourselves at the time we want them for class use, but we can send our jars, if we are not too far from Boston, to the superintendent of the Essex Bridge, Salem, Mass., who will fill them with a generous assortment of large and small, dark, light, and variegated ones, for a reasonable price. Of course, provision must be made for either renewing the water or aërating it by seaweed, or else the anemones will not live.

The resemblance between the hydra and the anemone will be at first best seen with the small anemones, because they are nearer the size of the hydra, and have fewer tentacles than the larger ones. The children will notice that the shape is similar; that they have the power of changing their form, of expanding and contracting their bodies; that they attach themselves by the base to different substances; that they have tentacles; and that their bodies are sometimes transparent.

They will see, on the other hand, that the tentacles of the anemone are more numerous than those of the hydra, and shorter in proportion to the size of the animal; and that the mouth, instead of being a hole at the end of a proboscis, appears to be an opening caused by a folding inward of the skin.

Occasionally we may put them directly in the rays of the sun, so that the full beauty and delicacy of their tints may be seen. In the sunlight, too, through the translucent skin of the lighter varieties we can see the numerous thin partitions dividing the body into chambers, and can make out clearly that the tentacles are hollow, and are placed over the spaces between the partitions. We will be careful not to have our

little friends in the sun too long at a time, for they especially need to be kept cool.

We give them little pieces of clams or of raw meat, and the children eagerly watch them draw their tentacles up over the morsels, which by degrees are rolled to the mouth, that will stretch to the utmost limit to take in a large bite.

After this preparatory work of observation, we commence our formal lesson with a talk about the home of the anemone, and, learning that it lives in the ocean, sometimes on stones and shells, sometimes on the piles of wharves and bridges, we know that it must be by the tough, firm base that it thus attaches itself. We learn that the mouth end is the disk, and the body between the disk and the base, the column. We find that the whole surface is covered with a firm skin, and, projecting from this on the disk are many rows of tentacles, the longest ones nearest the mouth, and numerous smaller ones near the margin, forming a beautiful fringe.

Looking down upon the disk, when the anemone has its mouth open, we see that the mouth is the opening of a sac which hangs down inside its body. This sac or stomach is held in place by septa or partitions passing from the outer wall of the body to the stomach. Besides these partitions there are many shorter ones which do not reach to the stomach. If we cannot prepare sections to show the internal structure of the anemone and the connection of the hollow tentacles with the spaces below them, we can make these pretty clear by blackboard sketches.

We compare further with the hydra. "Has the hydra a stomach?"

"The whole inside of its body is its stomach."

"Where is the mouth?"

"The mouth is in the end of the proboscis."

"Has the anemone any proboscis?"

"I don't think it has."

"What has the anemone that the hydra has not?"

"It has a separate stomach inside its body."

"A very curious one, too. When the anemone is not eating, the stomach is open at the lower end and the sea-water that goes in at the mouth passes all through the body; but when the anemone is digesting its food, the lower end of the stomach is closed, so that the food cannot pass into the rest of the body until it is thoroughly digested. How does the anemone catch its food?"

"It has lots of fishing-rods; more than the hydra."

"How many has the hydra, usually?"

"It has seven or eight."

We go on to explain that the white cords given out by the anemone when roughly handled are store-houses of poisoned lines, much like

those of the hydra. Not only in these cords and in the tentacles are the weapons lodged, but even, it is said, in the inside of the stomach.

If we are fortunate enough to have a baby anemone, just budding from a large one, we see in this another resemblance to the hydra. Moreover, it has to some extent the power of reproducing itself from cuttings, as we might say.

Now we will follow Professor Agassiz' method of comparing the two animals. Let a glove-finger with the tip cut off represent a hydra with a very long proboscis. We turn the proboscis inward and it becomes a sac, the stomach of the anemone. Then if we imagine the outside of the glove forming folds on the inside, we have the partitions.

Some other points remain, such as the way in which this little creature moves from place to place ; its greediness in devouring animals almost as large as itself ; the sets of muscles by which it contracts and expands ; and, in some species, the eye-spots at the base of the tentacles. These furnish material for an interesting lesson, which the teacher will readily work up for herself.

PROGRESSIVE STEPS IN THE STUDY OF MUSIC.

BY W. S. TILDEN.

III.

In his earliest years, the child sings wholly by imitation ; afterward he comes to the period of elementary instruction.

One important aim in elementary instruction is to give the pupils the ability to decipher for themselves the musical forms placed before them,—to *read music*.

In these days, when musical instruments are found in every house, a large proportion, even of those who are called acceptable singers, never really read the music that they sing ; the notes are struck upon the piano, and then imitated by the voice.

In schools, true elementary instruction is probably much less common than is generally supposed. Many schools never pass the infantile stage in music ; they simply sing tunes which have been memorized, with no attempt at elementary teaching. We do not now speak of these. But we may enter a school-room and hear the class busily *sol-fa*-ing some exercise or song, and the natural inference is that they are learning to read music ; but on careful observation we dis-

cover that every new combination of sounds is learned by imitation, not read. The teacher gives the pattern, by voice or instrument, from two to twenty times, according to the aptitude of the class in memorizing. Every thing is learned by pattern, and there is no definite mental action required. Accordingly, whenever a new exercise is placed before the class, they always inquire for some one to show them "how it goes." They have not the ability to find that out for themselves, and most of them never will acquire it under the mode of teaching described.

The object of these papers is to give such direction to the elementary processes in teaching sounds that the pupils will develop the requisite powers.

We find two things which are easy for the pupils,—they can soon become able to do them without help or pattern: (1) they can pass from one sound in the scale to that next above or below it, and (2) they can pass from one sound in the tonic chord (*do, mi, sol*) to another. After having mastered the *scale* and the *tonic chord*, therefore, the pupil should be led to dispense with singing by pattern.

The sounds belonging to the *tonic chord* are of the highest importance in this process; Chev  calls them the *points d'appui*. Reference to them forms the only reliable guide to large and difficult intervals.

The following exercises show the method of studying them:

(a)	(b)
1 2 3 3 4 5 5 6 7 1	1 7 6 5 5 4 3 3 2 1
1 2 3 3 4 5 5 6 7 1	1 7 6 5 5 4 3 3 2 1
1 2 3 3 4 5 5 6 7 1	1 7 6 5 5 4 3 3 2 1

Placing upon the board the diagram of the scale given in the September number, and observing the directions there given as to the use of the small figures, point each of the above exercises. It is indispensable that the pupils *think* the sounds represented by the small figures, as well as sing the others. When the above are mastered, proceed with the next series:

(a)	(b)
1 3 5 1 1 5 3 1	1 3 5 1 1 5 3 1
1 3 5 1 1 5 3 1	1 3 5 1 1 5 3 1
1 3 5 1 1 5 3 1	1 3 5 1 1 5 3 1
(c)	(d)
1 5 3 1 1 3 5 1	1 5 3 1 1 3 5 1
1 5 3 1 1 3 5 1	1 5 3 1 1 3 5 1
1 5 3 1 1 3 5 1	1 5 3 1 1 3 5 1

(e)

1 3 3 1 3 5 5 3 5 1
1 3 3 1 3 5 5 3 5 1
1 3 3 1 3 5 5 3 5 1

(f)

1 5 5 1 5 3 3 5 3 1
1 5 5 1 5 3 3 5 3 1
1 5 5 1 5 3 3 5 3 1

After these exercises have been pointed and sung with the diagram, they may be written out in the form here given, and sung from the board ; stopping to think the sound at the small figure.

SONG EXERCISES.

I.

(Sounds of the tonic chord.)

| 1 . | 3 5 | 1 . | 5 . | 1 5 | 3 1 | 5 . | . 0 |
Out in the for - est, Summer breezes play, - - - -
| 1 5 | 1 5 | 3 5 | 3 1 | 5 . | 5 . | 1 . | . 0 ||
And the birds are singing All the live - long day - - - -

II.

| 1 3 | 1 3 | 5 . | 5 0 | 5 5 | 3 5 | 1 . | . 0 |
1. O - ver field and mead - ow, Where the daisies grow - - - -
| 1 1 | 5 5 | 3 . | 5 0 | 5 3 | 5 5 | 1 . | . 0 ||
Up and down I wan - der, Singing as I go - - - -

2. They who see me roving
Think me all alone ;
But the birds are with me,—
Hear their joyful tone.

3. How can I be lonely,
When, through all the day,
Little brooks are dancing,
Singing on their way?

III.

(Tonic chord and scale combined.)

5 | 3 4 | 5 5 | 3 5 | 1 5 | 6 5 | 4 3 |
1. How sweet to hear the bugle clear, The for - ests wide a -
| 2 . | 0 2 | 3 2 | 1 3 | 5 4 | 3 5 |
mong - - Its echoes soft, Re - peat - ed oft, Are
(Echo. Very softly.)
| 1 5 | 5 3 | 5 . | . 5 | 5 3 | 5 . | . ||
heard so long, so long - - - - so long, so long - - - -

2. And ev'ry tree
The eye can see
Is clad in bright array;
Through vale and nook
The rippling brook
Flows far away, away.

(Echo.) Away, away.

3. To ev'ry heart
Doth joy impart
The bugle's cheering tone;
The care that pressed
Each sorrowing breast
At once is gone, is gone.

(Echo.) Is gone, is gone.

NATURAL HISTORY IN PRIMARY SCHOOLS.

BY J. M. ARMS.

XII.

In our last number it was seen that a higher member of a class (using the frog for illustration) repeats in its own development the life-history of the whole class to which it belongs; while the present number will go one step farther, and show that no class of vertebrates stands alone, but that the higher members of each epitomize the life-history of lower classes as well as that of its own.

Among the startling assertions of Natural History is the one that the reptile and bird are closely related. So long as external characteristics and habits merely were studied, the bond of union was not discovered; but as soon as close attention was given to the subject of comparative anatomy, and the fossil remains of reptiles and birds, the secret was revealed, and ugliness and beauty were seen to be only different expressions of the same fundamental type of structure.

The attention of the teachers was first drawn to the tortoises and turtles, which were represented at Professor Hyatt's lecture by the common black and yellow spotted turtle. The external, or skin skeleton here consists of horny epidermal plates (familiarily known in some species as "tortoise-shell"), underlaid by bony plates, which are formed from the true skin or dermis. It is in these reptiles that the external and internal skeletons have become united, producing one of the most extraordinary modifications of structure to be met with in the animal kingdom. Turtles are animals in which children, especially boys, delight. They are curious to examine the hard box which incloses the soft organs of the body, and watch with interest the quick motions of the head and limbs.

The typical reptile, however, is not the turtle, but the lizard. The teachers observed that the body was enveloped in scales, but that these scales were not covered by a thin skin, like those of fishes, being formed in nearly all reptiles from the epidermis instead of the dermis. They also observed the metallic hues of the skin, the eyes with movable lids, the external ears, and the teeth set in definite bony sockets.*

After the children have observed the shape of the fowl, its power of balancing itself upon two feet, and its wings, an interesting lesson may be given upon the external skeleton. The scales with which they are familiar have become changed or modified into feathers, something wholly new and peculiar to birds. Choosing typical feathers, as those

from a hen's wing, the children, with the specimens in hand, may observe the different parts. First, they will notice the stout quill running into the tapering shaft, with the little groove along its whole length ; next, they will want to examine the delicate web with its fibres, or barbs, as they are called, which bear on either side the hooked little barbs. They will also notice that a few of the barbs are not fastened together, and when they come to examine "down-feathers" they will find that all the barbs are free because all the little barbs are without hooks. Other feathers from different parts of the body of the fowl, and also from different kinds of birds, may be examined, and their shape, size, and varied colors noted.

By means of an inexpensive model, the teachers were shown the singular process by which a feather is made. They saw how the dermis grows outward in the shape of a cone, and how this conical outgrowth becomes the mould of the feather, while in the overlying epidermis the cast of the mould is formed. Then they saw how the epidermal cast would tend to break along its weakest or thinnest portion, and in so doing would expand into a feather. After a time the dermis finishes its work of mould-making, and together with the epidermis makes the quill, which is the latest formed portion of the feather. The children may observe the toothless beak, and the sharp claws, — both parts of the external skeleton, and both horny like the feathers. If the teacher can obtain a section of the hollow bone of a bird, it may be compared with the solid bones of mammals and other animals that never fly.

In years past the study of Natural History, as taught to children, has been almost wholly confined to vertebrates, indeed, we might say, to birds and mammals. This has been owing, in part, to the prevailing opinion that the little ones are only interested in the animals most familiar to them. A change is now taking place, for it is the experience of many teachers that children are delighted with a sea-anemone as well as with a bird, and as much interested in a star-fish as in a kitten. It is also seen that the habit of close observation is best cultivated by a study of the lower forms, owing to their greater simplicity of structure, and also to their small size, which makes it possible for each child to study with a specimen in hand. The habit of observation once acquired will lead children to observe more intelligently the animals about them. It will show them how perfectly the structure of birds is adapted to their various modes of life, how the swimmers have webbed feet, the perchers curved claws, the robbers sharp talons ; and how the runners have long legs and necks, while the scratchers have short ones.

It will lure them, this habit of observation, into the forests and meadows, where, perchance, they may meet with some of the adventures of Audubon, or where, at least, they may learn the secrets of nest-building,

and train the ear till the song of every little bird becomes as familiar as that of the oriole or the robin.

* If, at this point, the teacher makes a general study of that great middle period of our earth's history when reptiles flourished, she will be surprised at the interest she feels for a class hitherto most repulsive to her. In the sandstones of the Connecticut Valley, Hitchcock found footprints of reptilian birds; in the Solenhofen slates of Germany, Meyer has recently discovered "the first bird" with a reptile tail bearing feathers, and in the limestones of the West Marsh has brought to light birds with teeth, and with vertebræ like those of reptiles. It is these transitional forms which connect the reptiles with the birds of to-day, as typically represented by the common fowl or the pigeon. (See page 78.)

PRIMARY CLASS IN PHYSIOLOGY.

BY MRS. LOUISA P. HOPKINS.

I.

After an exercise in calisthenics, the six younger pupils remain standing.

Teacher.—What nice twisting bodies you have, just like india-rubber! Is that what you are made of?

All (laughing).—No; we're made of flesh.

Teacher.—How do you keep up straight, then?

Prescott.—We have bones.

Teacher.—Any bones like this (showing a fish-spine)?

Holly.—No; I guess not.

Teacher.—When you undress to-night, feel up and down your back, and tell what you feel. You may feel of each other now, gently. Madge, what do you feel on Lily's back?

Madge.—Knobs, all in a row.

Lily.—So do I, on Madge's back.

Holly.—It goes all up and down my back.

Teacher.—You may as well call it your backbone; it is something like this of a fish.

Prescott.—What makes the knobs?

Teacher.—Look at this. Is it one bone?

Lily.—No; it is a good many little ones.

Teacher.—You can count the knobs on your back to-night. You should find twenty-five. Each is a little bone with points sticking out.

around it. and a hole in the middle, through which a soft cord runs. So your backbone is really twenty-four small bones, like beads strung on a string, and each has hooks with which it holds on to the other, so they are all caught together. (Show a vertebra.) Now all bend over, and then back, very far and fast, back and forth, back and forth. Do you hear all those little bones rattle, or creak, as they move, and the cord strain?

All.—No, no ; they don't make a bit of noise.

Teacher.—Isn't that funny? One would think they would all go creak, creak. If they did, what should you think would cure it?

Lottie.—I should think they would be oiled.

Prescott.—I should put something soft between them.

Teddy.—How is it fixed?

Teacher.—Why, God thought just as you do, and he put little soft cushions between them, and little bags of oil to squeeze against them, so that they do not rub and grate on each other.

Girls.—How good! (Boys look serious.)

Teacher.—What keeps you so firm and round, Prescott? See, when I clasp my hands on your sides and about your chest, I can't squeeze it in like a rubber doll.

Holly.—But you can down here.

Madge.—There are bones up here, and not down below.

Teacher.—Now feel of yourselves, all under your arms down to your waist. Do you feel the bones?

Lily.—I feel bars going in a ring just like hoops.

Holly.—So do I.

Teacher.—Now feel in front. Do you feel the bars there?

All.—No ; it is flat and hard.

Teacher.—One flat bone in front and hoops on each side. I brought these old bones to show you ; they are the bones around a horse's chest, a good deal like yours. I found them out in that old field by Cedar street. They were joined to a backbone, also, at these ends. These bars are a part of the little bones of the backbone, reaching around the chest to this flat bone, the breast-bone. So your chest is all framed in, isn't it, Lily? Here is a picture of it. Some of these bones are a little soft near the breast-bone ; and in you the breast-bone is not very hard, but it will grow harder. These bones that hoop around are called *ribs*. The other day Mr. Bliss fell from the roof of a house, and broke two of these ribs. He has to be very still while they mend themselves, and it hurt him a good deal. If more of them had broken, it might have killed him, for the parts of the body within the chest can not bear to be hurt without killing us.

Midge.—Jenny broke a bone in her leg, the other day, and the doctor tied her leg up in pieces of wood, and she has got to lie in bed three weeks.

Teacher.—Feel of your heads. Squeeze them. Are they hard?

All.—Yes, very hard; it is all bone.

Teacher.—The bone of your head is called the skull. It is pieced together in little jagged seams in these places,—here, and here, and here. It is a very good way to join bones together so that they won't come apart, and so that if you hit one part it won't jar the other parts as much. The cushions in your backbone save a great deal of jar, too. Just think how it would hurt you to knock the end of your backbone, if that and the skull were one solid bone. I guess it would make your head ache.

THE BUTTERFLY AND THE SHELL.

BY KATE L. BROWN.

The hands of the little clock pointed to nine. It was still, very still in the school-room. You could hear the pendulum move back and forth, b-a-c-k and f-o-r-t-h, and the flies buzz in the south windows. You could hear the wind without, lifting the withered leaves. Helen Russell stood before her pupils gazing thoughtfully at the upturned faces, which wore a look of awe and sadness,—not the hopeless sadness which comes to maturer years under the pressure of some crushing trial, but the timid glance of childhood that has looked in the face of its first bereavement.

That morning, as Helen entered the school-room, she was met by tearful faces, and the cry of, "O! teacher, *Flossy is dead!*" This was new information to her. During the night she had watched by the bedside of the sweetest and dearest of her pupils,—of a little child who went fearlessly down to the brink of the dark river, and there fell asleep as tranquilly as if for her was still another earthly waking. If Helen Russell had ever cherished feelings of fear and sadness at the thought of death, all such emotions were now banished. She had seen how gently and calmly a child could meet that great change, and in her heart arose the faith that the love that brings us into this life and surrounds us with such care, will as tenderly bear us hence; and that on that next waking we shall be still with Him. So it was with hope, not sadness, that Helen opened the Bible and read to the quiet children those glorious words, beginning, "I am the Resurrection and the Life!" The Lord's Prayer was tremblingly chanted, and through the clear notes

rose more than one sob, as all thought of the voice that led them by its strength and sweetness only the morning before. The last note died away, and earnest faces looked into Helen's a mute prayer for the words of comfort which they knew would come.

"Dear children," she began, "last night, while you were sleeping in your little beds, I sat by one whom we all loved. I held that hand, and watched that face. How it smiled on me, and how sweetly and calmly that breath rose and fell until it died away! If you had been there, you would not have been afraid to see Flossy die. Did you ever see a baby fall asleep? Just so quietly did our darling sleep, and could you see her now smiling among the ferns and flowers, you would not fear and cry. Do you remember what we found one day, on the under-side of a leaf?"

A look of interest flashed across the wondering faces, and one little hand is timidly raised.

"It was a cocoon, teacher!"

"You remember how dead it seemed, how ugly, and crooked and black. We put it in a warm place, and gave it plenty of air, and watched it for many weeks; and one day the shell burst, and what came out?"

How the hands fluttered, and a chorus of voices cried:

"Oh! a butterfly! A lovely, white butterfly!"

"We all remember what a pretty sight it was to see those damp wings spread and dry themselves, and finally flutter among the plants in the window. We opened the window, and let the beautiful creature fly away, 'To be happy among the flowers,' as Flossy said. Now, dear children, there was something in Flossy, lovelier and better than any butterfly. You could not see it, any more than you could the white wings before the dark shell opened, but it was there. Do you know what we call this thing? It is the soul. Whenever she smiled, it was this lovely soul shining through her eyes. Whenever she spoke a kind word, it was prompted by this soul. We did not love Flossy because of her blue eyes or brown curls, but because of her kindness, her truthfulness, her generosity. Because she had this soul she was kind, truthful, and generous. God put her little soul in the body that we saw, just as He put the butterfly in the cocoon. When the butterfly grew too large for the dark shell, it burst its wrappings and flew away. So when Flossy's soul grew too large for her body, it broke away from that body and went to stay with God, where there is more room, and where it will grow larger and lovelier. Every child here has a soul shut away in his body. That soul wants him to be sweet, and kind, and true. If he is unkind, selfish, mean, there is not room for the soul to grow big and strong. If you should tie up one arm very tightly, and leave it so, it

would soon become small, and weak, and useless. Bad words, selfish actions bind up the little soul, and keep it feeble and suffering. Good words, kind deeds, make the soul free, and able to grow, and it grows bigger and sweeter, until the body can hold it no longer; so it goes to God's great soul, to grow larger still. So to-morrow, when we all go to church and look at that dear form, do not let us fear and weep, and think that it is Flossy who will be laid away in the earth. It is not Flossy; it is only the cocoon from which the butterfly has broken away, the empty body from which the beautiful soul has flown to God, where your soul and my soul will go, if we are only good and true."

OUTLINES OF OBJECT-LESSONS.

BY ANNA.

I.

1. TEACHER AND PUPIL.—Friendly reception of the pupils; assign places; inquire the pupil's Christian name and surname; his age (birthday).

Residence and occupations of the parents, etc.

Attending school (why?); to learn (what?); to play (when?);—take walks. Teacher: name, residence, work.

2. EXERCISES.—Sit, ~~rise~~, stand, sit; come, go; hold up the slate, the primer; place it on the table, under the table, etc.

Hands: right and left hand; raise hands; hold them out; clasp hands; clench hands; drop the hands; forefinger, to point, etc.

Feet: ~~right and left foot~~; exercises in going, jumping, running, hopping; (raise the right,—left foot); go tip-toe, ~~march~~, etc.

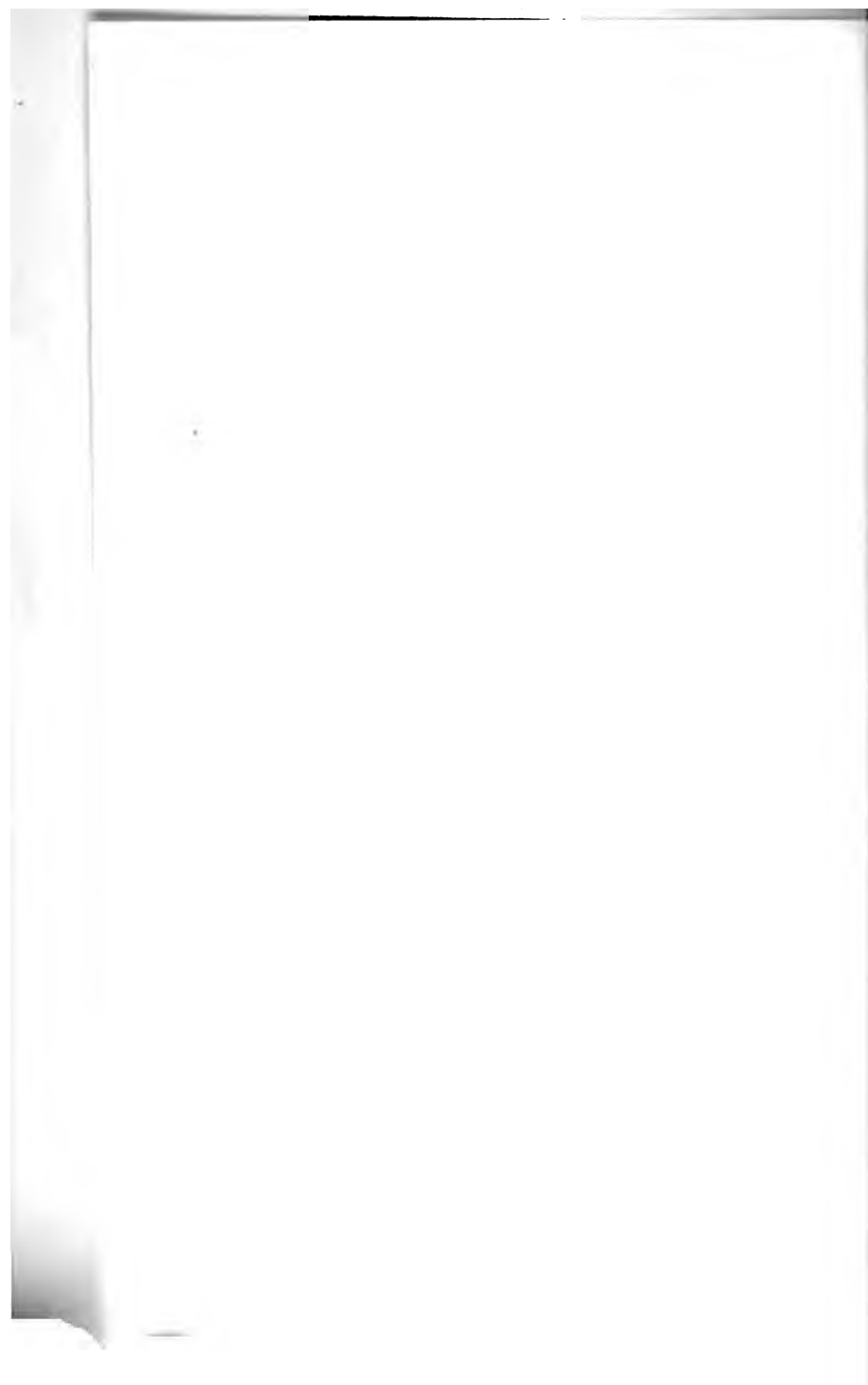
Sit quiet, ~~hush~~, listen, ~~see~~, attention, answer, speak, sing; ~~must not whisper, quarrel, fight.~~ *Sober, (speak, sing, to play)*

3. SCHOOL—OBJECTS.—Their names, color, form, parts, of what made, by whom, use, number, place, relative position to other objects, or to pupil, etc.

4. SCHOOL-ROOM.—Walls, number and position of windows and doors, floor, ceiling.

5. THE HUMAN BODY.—Parts: head, trunk, neck, ~~breast~~, abdomen, arms, legs.

The head: oval; hair: color, soft, coarse, cut. He must not strike the head, or pull hair.



Face : the mouth : upper and lower lip, teeth, palate, tongue, throat. With the teeth we must chew well our food ; must not bite hard objects ; toothache.

Mouth : talk, sing, eat ; dumb.

Nose : above the mouth ; smell, breathe, ~~inspire~~, ~~expire~~.

Eyes : on the sides of the nose ; color, eye-balls, eye-lids (purpose), brows, sockets, blind.

Ears : on both sides of the head ; ear-lap, deaf.

Forehead, temples, cheeks, chin, are named and pointed out.

Neck : joins head to the trunk ; throat, nape.

Trunk : arms, legs,—right and left arm, right and left leg.

Arms : shoulder, upper and arm, elbow, wrist, hands, fingers, nails.

Legs : hips, thigh, calf, shinbone, knee, ankles, foot, heel, sole, toes, nails.

Use of arms and hands, of legs and feet.

8. CLOTHES.—What clothes do you wear (boy, girl) ? ~~the teacher~~ ? With what clothes do we cover our head, neck, trunk, arms, hands, legs, feet. Who made them ? of what ? Cutting, sewing, patching, darning. Why do we cover ourselves ? Clothes : soft, warm, thin, thick ;—color. Love of order ; cleanliness,

7. SCHOOL-HOUSE.—*Exterior parts* : four sides, walls (vertical, material), doors, windows (symmetrical position of doors and windows), chimneys (where ? how many ? use ?), roof (position [why ?], material), gutter (where ? why ?), ridge.

Interior parts : rooms, passages, stairs ; color of walls ; ventilation ; cleaning.

8. SCHOOL-YARD.—Surroundings, wells (cistern), retreat, planted with trees (why ?).

9. THE FAMILY.—Father and mother (parents), children : son, daughter, brother, sister ; relations : grandfather, grandmother, uncle, aunt, nephew, niece, cousin, servants.

What do parents do for their children ? Children must love their parents, obey them ; must work and study diligently ; must agree together, serve each other.

10. AUTUMN.—The heat has decreased. It often rains ; stormy. The last fruit ripens, and is gathered. Leaves of the trees grow yellow or red now ; fall off. Most of the birds depart for a warmer clime.

11. FOG IN AUTUMN.—The mist consists of aqueous vapor ; excludes distant objects from sight ; when it sets, all objects get damp ; wet ; will have fair weather soon.

12. THE SUN—Form, color ; dazzles, warm ; rises in the east, morning,—red, daybreak, can see ; position while going to school ; rises higher, forenoon ; highest position, noon ; sinks slowly, afternoon ; sets in the west, evening-red, twilight, dark, cool, cold ; night.

13. NIGHT.—Can see moon and stars (always?) ; moonshine : full-moon, first quarter, last quarter.

14. LENGTH OF DAYS.—Position of sun : at morning, noon, evening? sets : where, when? How many hours from noon to sunset? Length of day, of night ; when are the days longest, when the nights?

15. WIND.—I can feel the wind, though I do not see it ; ~~perceptible~~, ~~invisible~~ ; blows softly, strongly, violently ; storm, damage.

North.—Produces cold ; sore throat ; not run out-doors ; keep mouth shut, breathe through nose.

16. CHRISTMAS-TREE.—When is Christmas? It is celebrated in school, at home (why?) ; pine tree (~~cedar~~) ; grows in woods, has beautiful limbs, shall serve as candlestick ; is hewn (with what?), brought to town, sold ; parents adorn it (with what?). Christmas-eve (morning) ; candles lighted ; children called ; receive presents ; think of the poor. Tree lighted again at some later time, robbed of its beautiful fruit.

VOCAL CULTURE.

BY MRS. J. M. LORD.

I.

With this number we will begin to study expression ; it is very needful that the teacher should explain the meaning of the word, so that all will understand its various divisions as they are to be considered, and as they are presented. Write upon the board the simple sentence, "What a beautiful rose Anna has in her hand!" The teacher calls upon Jennie to read it ; she reads it in a careless manner, merely calling over the words as they are written there, giving no variation whatever. The teacher calls upon the class to notice carefully how it is read, and then desires Arthur to read it ; he reads, giving it a pleasant expression, placing the stress upon the words that are emphatic. The teacher now inquires, which of the readers gave the best expression? Alice alone raises her hand ; she has been very attentive to the lesson, and the remainder of the class have not yet become at all interested.

Teacher.—"Well, Alice."

Alice replies : "The rose in Anna's hand is red." Now the eyes begin to sparkle, and each one looks at the rose.

Teacher.—"Mary may tell us what she thinks about it."

Mary says the rose is large and full of leaves. And so the teacher

will only need to lead them on step by step, till she finds that there is an interest in the subject beginning to dawn ; and soon all will see that some word or words in the sentence need to be emphatic in order to convey to their minds the fact that the rose is a *beautiful one*, although what constitutes its beauty varies in the opinion of nearly every one in the class. Then they will see that these words "*beautiful rose*" in the sentence are the ones to be emphasized ; or perhaps it will be well to use the word *strong* ; they are the *strong* words, and give the *expression* to the sentence. Fix this definition so firmly in their minds that they will not lose hold of it ; viz., that *some words* are found in every sentence, or piece of writing, that must receive greater stress (or be used as strong words), in order to convey the meaning of the author of the writing to the mind of the *reader* or *hearer*.

Now take up "Emphasis."

Teacher.—"Emma, did you ride to school *to-day*?"

Emma replies, "I rode *yesterday*, but walked *to-day*."

Teacher.—"Susie, did you ride to *school* to-day?"

Susie replies : "I rode as far as my father's store, and walked the rest of the way."

Teacher.—"Allen, did you *ride* to school to-day?"

He replies : "No ma'm ; I never ride ; I always walk, I live so near the school house."

Teacher.—"John, did *you* ride to school to-day?"

He replies : "Henry rode, and there was no room for me in the carriage ; so I had to walk all the way."

The teacher will have no difficulty in showing every scholar, even the youngest, that by placing the emphasis on *one* word it will change the meaning of the whole sentence ; and also that unless some word is emphasized, the sentence will be without meaning.

Write a little story, or some incident upon the board, viz. :

As I was coming to school this morning, I met a boy who had a pretty little dog in his arms, and he asked me if I knew of any one who wished to *buy* a dog.

Call the attention of the class to the story ; allow them to ask some questions about the dog, and then give a simple analysis of the story, leading them along till they get the clue to the emphatic word. This will be a pleasing exercise for their little minds, and will give them a pleasure that is very acceptable ; indeed, it will be pastime instead of labor.

I was visiting a school, not long since,—an ungraded one. A class was called upon to read, and they opened their books in an indifferent manner, turning the leaves noisily until they found the place, and began to read. I should not like to tell you how some of them read, or

called over words from the book ; *it was not reading*. Soon the teacher said : " Lettie, you may read the first paragraph on page ten." Lettie arose to read, turning the leaves of her book as she did so, until she found the place ; the teacher then said : " Now speak up loud, and be sure to emphasize your words." A hand was raised in the class, and when the teacher noticed it and said, " What is it, James?" he replied, " Please m'am, what is emphasis?" The thought struck me rather forcibly then, that this subject needed some explanation. After the class was through with reading, at the teacher's request I took the crayon, and calling the attention of the class to the blackboard, I went through with the above lesson, in an expanded form, taking up *emphasis* especially, and I had a most attentive and interested class for a full half hour. I have since learned that the teacher has commenced at the beginning of these exercises, and is faithfully instructing that class in reading, and is doing the work with great success. I would be glad to expand these lessons, but the teacher can easily do so, and so I only give hints : yet I am glad to answer any questions, and will lend all the assistance in my power to any puzzled teacher. I will add a little poem for recitation, or reading :

THE GOOD ANGEL.

Through every land there goeth
 An angel quietly ;
 No human eye can see him,
 Yet he can all things see.

From house to house he roameth,
 And when with joy he finds
 A good child with its parents,
 He to that child inclines.

And with that child he joineth
 In all its little play ;
 He helps him learn his lessons,
 And helps him to obey.

And when that child is sleeping,
 He never takes his flight ;
 He watcheth by his bedside
 Until the morning-light.

— Clearness of ideas must be cultivated by exercising the intuition, and the pupil must be educated to independent activity in the use of his own understanding.—*Seneca*.

OUR NOTE-BOOK.

The sculptor models his figures in clay and then directs the skilled workman to use the chisel upon the marble, and make permanent the conception of the artist. The teacher likewise must have her model, — her *ideal*, — in mind, as she performs her work upon the plastic natures of her young pupils. She must use all her powers skillfully, and endeavor to do more than perform the mere routine of school duties. She should seek to realize her ideal by putting on the careful finishing-touches that beautify the soul, at the same time that the mind is being developed. The following poem from *The Teacher* inculcates the true spirit of the teacher as the artist of the minds and hearts of the young :

Yes, sculptor, touch the clay with skill ;
 Let lines of beauty curve and flow,
 And shape the marble to thy will,
 While swift-winged fancies come and go,—
 Till the stone, vanquished, yield the strife,
 And some fair form awake to life,
 Obedient to thy beckoning hand,—
 And thy name ring through all the land !

And, painter, wield the brush with care ;
 Give firm, true touches, one by one ;
 Toil on patiently, nor know despair ;
 Open thy whole soul to the sun,
 And give of love's serene repose,
 Till the dull canvas gleams and glows
 With truth and wealth of sentiment,
 And thine own heart shall be content !

But, teacher, mould the tender mind
 With daintier skill, with dearer art,
 All cunning of the books combined
 With wider wisdom of the heart,—
 The subtle spell of eyes and voice,—
 Till the roused faculties rejoice,
 And the young powers bloom forth and bless
 The world and thine own consciousness.

We have to thank our readers for the many questions they have sent to us in response to our invitation in the "Note Book" of the October number, and we shall try and make such suggestions, and give such hints in replying to them, from time to time, as we trust will aid them in their work. One correspondent asks, "How can coarse, rude children, from uncultured homes, be made refined pupils in the school?" In responding to this query we think we can best indicate our idea of the primary teacher's work and privilege in such cases by relating an incident in the life of a distinguished sculptor, which reveals the true mission of education :

It is related of Michael Angelo, that while walking with some friends

through an obscure street in the city of Florence, he discovered a block of marble lying neglected in a yard, and half buried in dirt and rubbish. Regardless of his holiday attire, he at once fell to work upon it, clearing away its filth, and striving to lift it from the mire and slime in which it lay. His companions asked, him in astonishment, what he was doing, and what he wanted with that worthless piece of rock. "O, there's an angel in the stone," was the answer, "and I must get it out." He had it removed to his studio, and with patient toil, with mallet and chisel, *he let the angel out*. What to others was but a rude, unsightly mass of stone, to his educated eye was the buried glory of art; and he discovered at a glance what might be made of it. A mason would have put it into a stone wall; a carman would have used it for filling in, or to grade the streets; but *he* transformed it into a creation of genius, and gave it a value for ages to come.

All teachers are not skilled as was Michael Angelo, nor are all rude children fine blocks of unwrought marble; but the suggestion to be drawn from the artist's work, and the results of his labor upon the stone, are suggestive of the transformations that may be wrought by the patient teacher upon many of the coarser types of humanity represented in the school. Try, teachers, to "let the angel out."

A teacher writes to know "how she can prevent lounging and sluggishness in her pupils?" We answer in general terms, without any personal knowledge of the special school or of the individual teacher who makes this inquiry, that there is an adage current something like this: "As is the teacher, so will be the school." It is true that a live, earnest, and enthusiastic teacher rarely has a heavy, sleepy school. There are physical conditions which, we are sorry to say, exist in many schoolrooms, which tend to produce the condition of things referred to, such as want of proper ventilation; want of exercise in the open air; excess of heat at this season of the year, when fires are first kindled; all tend to make children sluggish in body. But the discerning teacher of young children will quickly discover these causes of dullness, and remedy them. The following suggestions, from *Normal Methods of Teaching*, seem to us the wisest advice we can give to teachers to overcome indolent habits among pupils in the primary school. Wake up the mind, and the body will, if in a healthy condition, quickly show life and action:

- Manifest an interest in the subject you are teaching.
- Be clear in your thought and ready in your expression.
- Speak in a natural tone, with variety and flexibility of voice.
- Let the position before the class be usually a standing one.
- Teach without a book, as far as possible.
- Assign subjects promiscuously, when necessary.
- Use the concrete method of instruction, when possible.
- Vary your methods, as variety is attractive to children.
- Determine to secure attention at all hazards.

The new interest awakened in primary instruction throughout the land has brought out many general suggestions for the teachers of this grade. A teacher requests us to print the following, which are certainly wise hints upon the work of the teacher who is training little children:

✓ If you would have no drones in your school, talk at each recitation to the dullest in your class, and use all your ingenuity in endeavoring to make him comprehend. The others, then, will be sure to understand.

✓ Make each exercise as attractive as possible. Think out your methods beforehand, and illustrate freely.

✓ Cultivate self-control. Never be led into confusion, and above all, be in earnest.

✓ Be cheerful, and smile often. A teacher with a long face casts a gloom over everything, and eventually chills the young mind and closes the young heart.

✓ Use simple language when you explain lessons. Long words are thrown away in the school-room.

✓ Thoroughly test each pupil on the lesson, and do not be afraid of repetition. Review every day, or much time will be lost.

✓ Do not try to teach too much; better teach a little well.

✓ Endeavor to make your pupils understand the meaning of what they study. Probe the matter to the bottom, and get at the real knowledge of your scholars.

Cultivate the understanding, and do not appeal to the memory directly.

Lay the foundation of knowledge firmly and well.

Impart right principles, and lead your pupils to higher levels, to a nobler range of thought. Endeavor to accomplish all that skill, intelligence, and love can suggest.

Editor of the the Primary Teacher: — Since the articles entitled "Drill Exercises in Reading" have appeared in your journal, a number of questions have been asked of the writer concerning difficulties in the teaching of primary reading. These I will state below, answering them according to my light and experience.

THE CHRYSALIS STAGE.

One teacher writes:

"I have certain children who cannot seem to learn to read by the objective-word method. Let me teach a word one day and the next day they do not remember it. I have taught the same word day after day, but no impression seems to be made on the mind. What is the trouble? These children are not stupid, by any means."

Every teacher will, I think, testify that such is a very common experience. There is in this matter of reading, with many children, a chrysalis stage in which the mind does not seem to grasp what is presented. You may teach "cat" one day, and the next recitation they are as likely to call it "dog" as anything else. Or, if you succeed in fixing "cat" in the memory, when a new word is taught some will be ready to call it by the same as the preceding word. This stage may continue for weeks, but, unless the pupils are mentally deficient, it will not be permanent. Often the pupils will suddenly awaken, as if by magic, and gain in a few days all that they have seemed to lose before. I have in mind now one child who seemed to learn nothing during the first four weeks of the term. In the fifth week he began to show signs of awakening intelligence. At this time, the eighth week of school, she is in advance of her class, though its youngest member. This peculiar inertness of mind comes from two causes:

First, — The attention of the child is drawn from real objects having life, to that which is new and strange, and which does not invite the action of more than one sense. A child can understand a live cat purring at his side, but the word "cat" is at first an enigma. It does not look like a cat; it does not make him think of a cat until he has managed to fix the word.

Second, — Children of little imagination will be the ones likely to pass through the chrysalis state. A child of lively and vivid imagination will see in the forms of the letters some resemblance to the object named. For example, in "cat" one child said that the first mark (letter) was an old cat looking at her fat kitten (a) who was rolling on the floor.

In order to shorten the chrysalis state, make your teaching as vivid and dramatic as possible. Select at first only words which may be effectively taught by use of objects. Awaken and stimulate the imagination in every possible way, and the difficulty will soon be obviated.

OBJECT-WORDS, LIMITING-WORDS, ETC.

Another teacher says :

"I find 'the,' 'it,' 'is,' 'a,' and 'and' the hardest words to teach."

Limiting-words, like "the" and "a" should be taught in connection with some other object-word, — never separately. A child who cannot point out "the" readily, will yet recognize "the ball." In fact these words are meaningless unless connected with some name of an object. Children often find it hard to distinguish between "it" and "is." Call in the imagination. One of my pupils remembers "is" because the "s" looks to her like the curve of a robin's breast. But with all this let there be steady, patient, *varied* drill. Imagination, sprightliness, and genuine fun are the primary teacher's allies. Do not make your cats always "sit on a mat," but make them run, catch rats, and tumble with their kittens. If your children are so roused by the story you are teaching that they break from the row and press up to you with flushed cheeks, laughing eyes, and impatient hands, don't frown, dear teacher, but know that you are waking up mind, and anything that wakes up mind stimulates growth. B.

TEST-EXERCISES IN SPELLING.

anger.	margin.	lawyer.	chalk.	knives.	Arthur.
jingle.	title.	baptize.	sponges.	lace.	apples.
drumming.	mercury.	receipt.	Florence.	lawsuit.	angel.
atom.	arrow.	since.	dustpan.	melon.	biggest.
largest.	granite.	villain.	naval.	mowing.	balm.
cone.	solid.	Dols.	nation.	niece.	Charles.
differing.	engines.	Berlin.	razor.	napkins.	cheese.
mirror.	coal.	thieves.	heifers.	oak.	cipher.
paper.	anchors.	turkeys.	latent.	preacher.	daisy.

The following miscellaneous primary-school questions were prepared by the primary teachers of Cambridge, Mass., at the request of Superintendent Cogswell. We submit them to our readers, with the request that they will use them in their schools, as the basis of suggestive "talks" with their pupils :

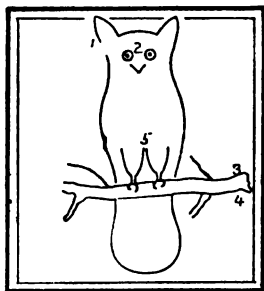
- What are newspapers for? What are the uses of water?
- How many toes has a hen on one foot?
- Why cannot a hen swim as well as a duck or a swan?
- Why does it take eight shoes to shoe an ox?
- What cities and towns join the city in which you live?
- Where does the rain come from, and where does it go?
- What can you tell me about the clock?
- What would you probably see in a farm-yard?

- What numbers could you write with the figures 1, 3, and 5?
- How should children always treat old persons?
- Of what use are our thumbs? Can we do without them?
- Name some articles made of iron. Of wood. Of tin.
- Tell me all you know about hay. Corn. Flour.
- What are some of the things you can do with snow.
- Of what use is a thermometer? A weather-vane?
- What things are made in this city?
- What places have you visited in Boston? In any city?
- Why ought we to treat animals kindly?
- What is an apothecary shop? A retail store?
- Name the different kinds of fruit-trees you have seen.
- In what position should you stand when reciting?
- What must you do in order to become good scholars?
- Of what are baskets made? Boxes? Bags?
- Tell me something the horse can do. The dog.
- Mention some things formed from water.
- Name some articles of food. Of dress.
- What did you see on your way to school?
- ~~What are domestic animals?~~ Name some of them.
- Where and how is coal obtained? ~~Wood?~~ ~~Oil?~~
- Why do we not see the stars in the daytime?
- What makes the little seed we plant grow?
- In asking a question, do we always keep the voice up?
- Of what use are Object Lessons? Describe your slate.
- Can a blind person read? If so, by what means?
- How is this building heated? How is your house heated?
- What things can we do with our hands? With our feet?
- Where does tea come from? Sugar? Rice? Raisins?
- What is the difference between a village and a city?
- Give a sentence containing the word that I mention.
- What season of the year is it? Month? Day? Time of day?
- What do people use for fuel? For light?
- Name the different modes of traveling,
- Where do the different kinds of fruit we eat grow?
- What kind of birds do we see in this city?
- Name the different animals that you have seen.
- What would you find at the sea-shore?
- What kind of vegetables do you know about?
- What do people do with eggs? With milk?
- How are ships useful to us? Speak of their size.
- Do cloth and flannel grow? Do raisins?

Many complaints reach us from parents in city primary schools, of the want of proper light in the school-rooms. It is often difficult to secure the sunlight in many school-buildings, that are not surrounded by suitable yards; but it is a matter of such importance in relation to the ill effects which school-life and close application to study exerts upon the sight that the attention of teachers should be directed to the matter, and all possible efforts be made to remedy the evil.

Dr. C. J. Lundy, of Detroit, Mich., makes the following valuable suggestions upon "Light in the Public Schools, and School-life in Relation to Vision":

Provide an abundance of light, — from the left side if the room is quite narrow, from both sides if the room is wide, — (but do not allow the sunlight to fall directly on the book or paper.)



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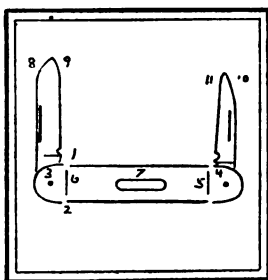
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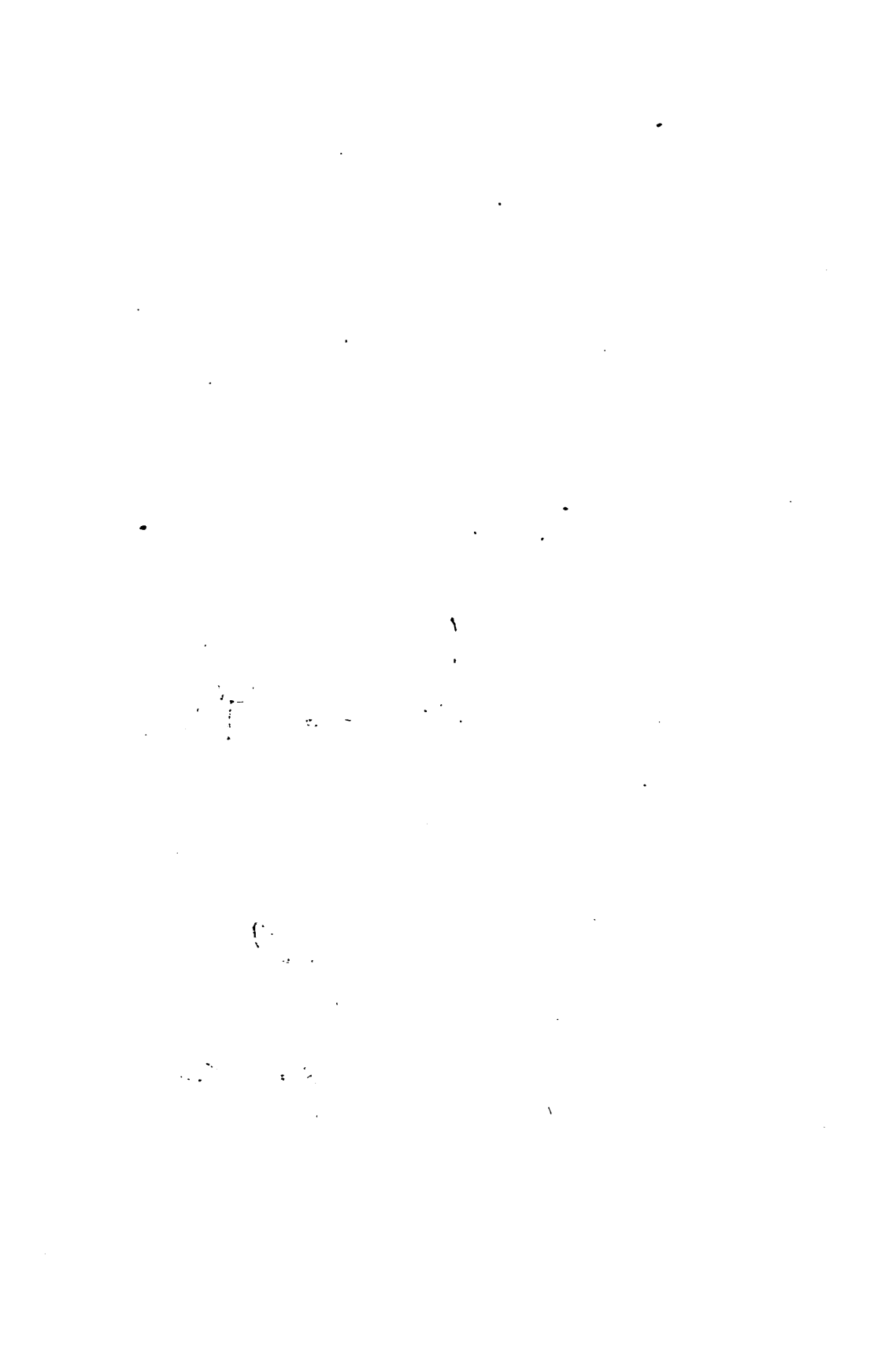
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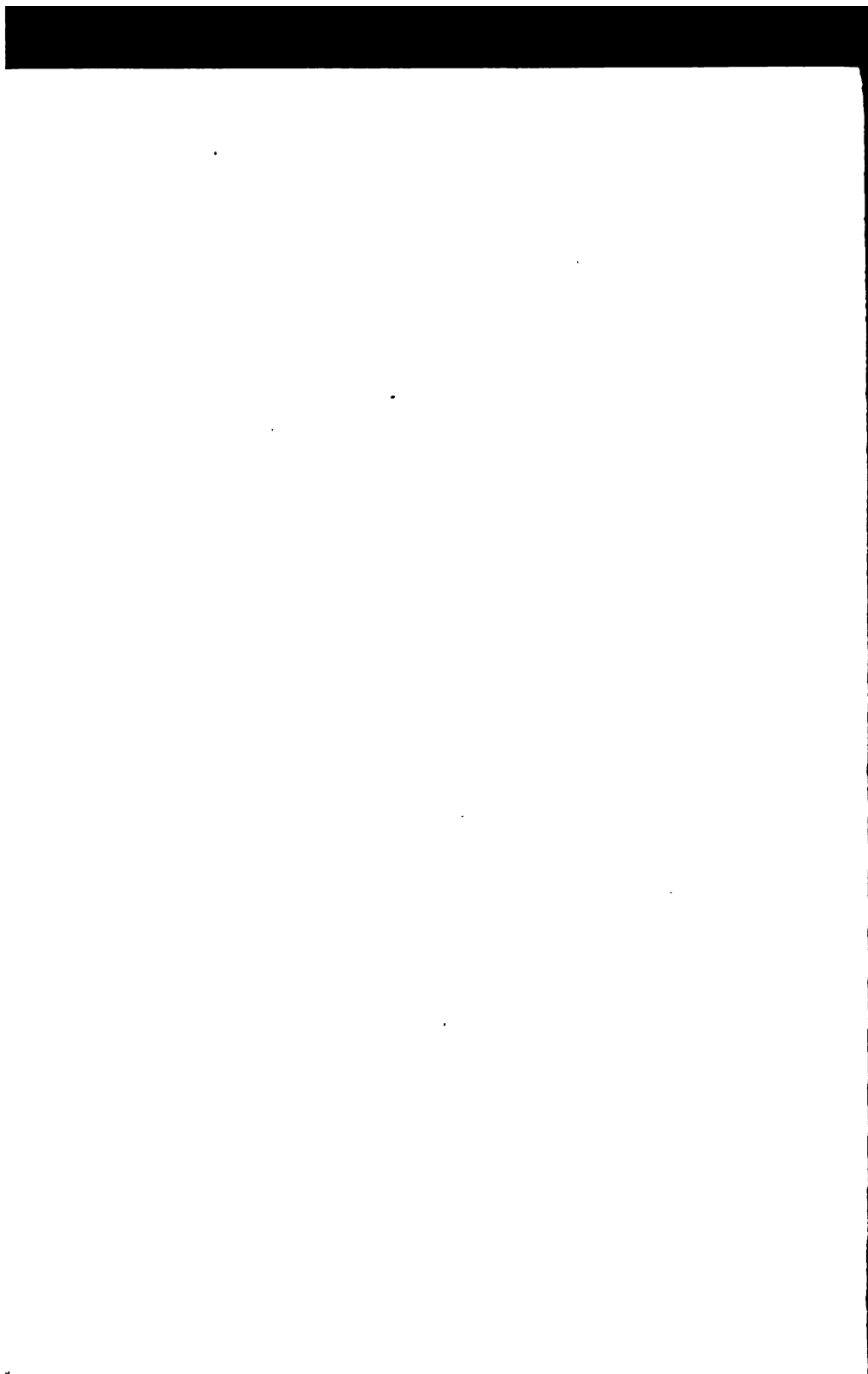



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THE
PRIMARY TEACHER,

A Monthly Magazine,

DEVOTED TO THE

Interests of Primary Instruction in America.

WM. E. SHELDON, EDITOR.

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FEBRUARY, 1881.

NO. 6.

MONDAY MORNING TALKS.

BY MRS. SARAH M. WYMAN.

I. — *COURTESY.*

In the "Note Book" of the November number of *THE TEACHER* is this inquiry: "How can coarse, rude children, from uncultivated homes, be made refined pupils in the school?" The very apt illustration given in reply suggests yet another inquiry: *How* can *we* most effectually "clear away the filth" and "let the angel out"? Shall we depend entirely upon our example and silent influence? Nothing can take the place of these, or even approximate them, especially when the crystalized soul shines out into the daily life of the teacher. Certain additional efforts for the development of that true courtesy which springs from the heart have come under our own observation, some portions of which we propose to bring before the readers of *THE TEACHER*.

School-room: Forty scholars, ranging from eight to fourteen years of age. Teacher, Sarah Mills. Monday morning. The sweet voices of children have joined in the hymn, "Nearer, my God, to Thee." The hush of "Our Father" still rests upon the school. Expectant eyes turn to the teacher, for Miss Mills never allows a Monday morning to pass without some little deviation from the regular exercises.

"Children, I have a story to tell you this morning," she says; "a true story. How many are ready to hear it?"

Hands flutter, eyes sparkle, and there is a little twisting of the more nervous pupils preparatory to the usual quiet during the Monday morning's digression.

"Three weeks ago, last Saturday, I spent the day in Boston. It was cold, and the streets were very slippery. I was in a crowded horse car near Tremont street, when I saw an old woman, thinly clad, trying to make her way upon the icy sidewalk. Her hands were purple with cold, and her face bore marks of suffering, — and, children, I am sorry

to say it, but it also bore marks of a wicked life. And here, I want to tell you what Emerson says ; how many know who Emerson is ? ”

Hands eagerly rise, for there are few men of note that Miss Mills’s scholars are unacquainted with.

“ This is what he says in one of his books : ‘ Every change in our experience instantly shows itself on our countenance, just as time tells itself on the face of a clock. ’ Do you understand, children ? Our faces are clocks, that tell others what our lives have been ; whether good or bad ; if our thoughts are pure and right ; or if we are planning wrongdoing and indulging wicked thoughts. This poor woman had, evidently, little to make her comfortable and happy. We don’t know what great temptations she might have had. Perhaps, step by step, first in little things, then in greater ones, she had been led to do wrong and think wrong, until her face told the story just as plainly as the hands on the clock of Park street church, at that moment, told it was twelve o’clock ; and oh ! I pitied her all the more, that she was not only cold and poor, but that she was suffering, also, from the effects of a bad life.

“ The clock had just done striking, when the woman’s foot slipped, and she fell upon the pavement. At that moment a young girl came along on the sidewalk ; her feet were protected with rubbers, lined with flannel and tipped with fur ; her dress was bright and warm ; and she was sheltered from the wind under her sealskin cloak and cap. As she approached the woman, vainly attempting to rise, she looked at her a moment ; then drawing the warm folds of her dress more closely around her, tip-toed out to the edge of the sidewalk, and hurried on into a neighboring store. The poor woman tried in vain to rise ; she was evidently in great pain, and her face was growing very pale. Our car had stopped, being hedged in with carts and wagons and the crowd of men and horses in the street. A sweet-faced mother at my side begged her husband to try and get out of the car and help the poor woman ; and we all started for that purpose, when there appeared a young man around the corner, walking rapidly toward her. ‘ He’ll help her up,’ said the husband. The young man carried a cane, and seemed to enjoy the keen air. He walked securely, but passed by, not even looking at the suffering woman, although I saw her reach out her hand toward him as if for help. Another young man passed, muttering to himself something about such ‘ poor old creatures, always on the street. ’

“ All this time, a boy had been sitting close by the door of the car, absorbed in a copy of *Cesar*. Our attempt to get out caused him to turn his eyes to the sidewalk. In an instant he sprang from his seat, out of the car, made his way under horses’ necks, between wheels and carts and wagons, over the icy gutter, and bounded to the woman’s side.

"'Are you hurt?' he said, tenderly. 'Let me help you up,' giving her his hand.

"'You are not strong enough,' sobbed the poor woman.

"'Oh, yes, I am!' and he lifted her from the pavement. By this time three gentlemen had gone from the car to his aid. She had injured her hip, and could not step without a cry of pain. 'Make room for her in the car!' shouted the boy to the conductor; and, children, if General Grant had issued the command, it would not have been more readily obeyed. The woman was lifted into the car. The boy, whose name I have since learned was Lewis Gray, took up his books, which had been left on his seat, and sat down by her side, inquired where she lived, and finding she occupied an attic remote from the line of cars, he told her she must stop at his house, adding, 'Mother will see what can be done for you.' Lewis's kind words seemed to affect the suffering woman. Tears rolled down her cheeks as she sat quivering from head to foot. Soon the car stopped; two strong men helped her out; Lewis managed to get her up the steps, and presently they entered the house."

Miss Mills paused a moment when she saw John Flinn, a thoughtful boy, suddenly raise his hand. "Well, John," she said.

"Will you please tell us how you found out his name?" answered the boy.

"Yes, John, I will tell you. Your former teacher, who came to see us on Friday, you remember, knows the family, and was at Mr. Gray's when the poor woman was brought into the house; she told me his name."

"What did Lewis' mother do?" said Susie Reed.

"Oh! she cared for her very kindly, sent for a physician, and told her she must stay with them until the next morning. Had I time, children, I might tell you how thankful the poor woman was, and of her wish to leave off drinking and all her other bad habits, if they would only get her a good place to live in. But the hour has almost expired. You can think this over, and next Monday morning we will talk about it. Now, a few of our Saviour's words, and then to our lessons. You may all turn to the 10th chapter of St. Luke. Julia and Maria may read alternately from the 30th to the 38th verse.

— Ideas before words; principles before rules; the judgment before the memory; incidental information before systematic; reading before spelling; the sounds of the letters before their names; and, on the whole, nature before art.

DISCIPLINE: ITS PRINCIPLES AND METHODS.

BY MISS L. D. PHILLIPS.

I

It is essential that one should comprehend the nature and importance of *any* work before he can rightly and wisely attempt its performance. The teacher who would succeed in her *disciplinary* work must fix upon her mind and heart the nature and importance of the work *she* has undertaken. Having this spirit, the teacher will be better qualified to establish true principles of discipline and to rightly understand those laid down by others.

Everything depends upon what the teacher *is*. She must not only have just and adequate *ideas* of the subject, but she must *be* what he acknowledges her efforts ought to accomplish in the pupil. Certainly, a teacher cannot *teach* unless she has been herself *taught*; neither can she *discipline* unless she has been herself *disciplined*. The child's character grows day by day, and more at school than anywhere else. In the primary school, the first and most lasting impressions are made. The results of all future efforts depend in a great degree upon the work done in the primary school. If the foundations are not well laid, the work of the higher grades will be more difficult.

If right habits of discipline are firmly established, all future efforts will be more effectual. One cannot tell how much influence a teacher of *any* grade exerts over her pupils. Even the *parent's* excellence of character or intellect is often questioned by the pupil as not being the counterpart of her teacher's. The school-room is the only place where many of our children receive right training in either mind or character. Not only the lower elements is benefited, but the better classes, because of the indulgence and thoughtlessness of parents, need the outside discipline. The parents themselves value the public school discipline.

The teacher ought then to make her whole life and character a pattern worthy of imitation. Let her example illustrate whatever she would cultivate in her imitator. Let her be free from whatever she would discountenance. Let her teach by *example* as well as by *precept*. The teacher cannot be *perfect*, but she *ought* to be. The teacher is behind all methods; so we will first discuss the *teacher*.

A good disciplinarian ought to have a knowledge of human nature, that she may know what to repress and what to nourish in the child. She can learn more by studying the nature of her scholars than from a *treatise* by somebody on somebody's *theory* of dealing with *somebody*.

This study of child-nature will be full of surprises for her who thinks she knows it best. She ought to study character and learn to detect a bad *habit*, and know to what that habit will lead if not corrected. She ought to study the character of *each* child (for no two are *exactly alike*), that she may be able to *select* and judiciously *apply* her method of discipline.

A knowledge of the *circumstances* of her pupils will *assist* the teacher in her study of their characters. Knowing their *home* influences, and what to expect from them, she will regard *differently* the child who has not the moral power to do from one who has. She should bear in mind that *any* child's powers are limited ; that not foreseeing so fully the *effect* of a bad act, she lacks a *sense* of the wrong committed. The teacher will then not judge him *too* harshly. "Condemn the fault, and not the actor of it."

Let the teacher be in good spirits. Children *always* adopt the mood of the teacher. We all know that when we enter the school-room in the morning with a cloudy face, how soon darkness spreads itself all around ; neither the child nor the teacher does hearty school-work. When the little fellow enters, his first glance is toward the teacher, and if he is greeted with a smiling face, he is made happy for the day. In the words of Goldsmith, "Well do the boding tremblers learn to trace the day's disasters in his morning face."

Let the teacher adopt the "golden rule." Boys and girls cannot be men and women. They are inconsiderate, and will often do things from a mere overflow of spirits, which should be checked,—but, "put yourself in the child's place." Some unfortunates cannot make allowances for children and their actions, not *dreaming* they *themselves* were ever restless, questioning little folks. The most successful *teachers* will be one who can remember her own childhood, and profit by its experience.

Ingenuity in devising new ways is one of the happiest characteristics of a good teacher. Sometimes a new mode of *discipline* may produce better results when the secret of the success is *not* that the teacher has discovered a *better* method, but that she has adopted a *new* one. Variety is the spice of life, and *especially* in the primary school.

Let the teacher be a person of marked individuality, and she will not be content to copy *herself* or *any one else*. No two *schools* and no two *teachers* are *exactly* alike ; so every one must find her own method. In short, a teacher must have *common* sense ; take things as she finds them, and know *how* and *when* and *where* to act. Joined with common sense, *experience* is *desirable*. "All is but lip-wisdom, which wants experience."

Thus far, we have remarked upon what the teacher should *be* ; *now*,

what must she *do*. Let her *appear* to do *little*. The pupils may *feel* the power of the teacher, but yet there may be no *exhibition* of it.

All *nations* find *some* form of *government necessary*. All societies, — wherever there is a collection of people, — form rules to be observed.

In *school*, — a collection of *children*, — control is *equally necessary* for promoting *intelligence* and *morality*. We remember "*order* is heaven's first law." *Without it* in the *school everything* would be a *failure*. To *promote* order, and properly govern a school, requires a *determined purpose*, self-possession, energy, patience, and an exercise of all the *governing qualities*.

We should not seek to manage our school well *merely* to secure *temporary conformity* to the rules of *this* school. But we must bear in mind that *school-government* is a *means*, not an *end*; a *means* to train our scholars for future usefulness; a *means* for facilitating *all* the work to be accomplished.

NATURAL HISTORY IN PRIMARY SCHOOLS.

BY J. M. ARMS.

XV.

From the twenty-three specimens of minerals and rocks which were given each teacher at the two concluding lectures of the Science Course, we select only one mineral, hoping it may suggest to those who were not numbered among the five hundred, the quality of work which the lecturer wished to have done with all the common minerals. The chosen specimen is quartz. We will suppose that every child in a school numbering fifty is provided with a piece of the mineral. Many of the specimens have been collected by the class of last year, thus saving the time of the teacher, and leading the children to observe what lies immediately around them. In this way they have acquired early a habit of observation which will be useful through life.

Guided by the teacher the little ones find out for themselves the physical characters of the quartz. Its color first attracts their attention, and they observe that all the specimens are white, while some one in the class asks if quartz is always white. Others know, and are eager to tell; but before they impart their knowledge, let all the children try to answer the question for themselves by looking at the stones in the fields, and those in their friends' cabinets. At the next lesson the results of the children's observations may be told, and the specimens

they have collected may be shown ; while the teacher, in her turn, shows the varieties which she has been able to obtain, as red quartz or jasper, purple quartz or amethyst, and banded quartz or agate. After color, the lustre and cleavage may be determined, as shown in our last number. Even the smallest child may observe that the lustre is glassy, and that the mineral breaks without any even surfaces. In the elementary lessons on Crystal, the children have discovered the favorite form of quartz. For the present lesson a perfect crystal is needed, which may be observed, and later, when the time comes for writing a description of the mineral, the older ones may also draw the crystal, while the little ones may describe it in their own words.

The next question, "Is quartz a hard or soft mineral?" may be answered by the children after they have made one or two examinations. Before school-time, or during the recess, the teacher has placed a piece of calcite in the corner of each desk. This mineral is abundant, and a large specimen has been broken into fifty fragments. Directed by the teacher, the children try to scratch the quartz with the calcite, but it refuses to be scratched, and the more they try the more scars are left on the calcite. This proves to them that quartz is harder than calcite. A little boy may next try to write the word *quartz* on a piece of glass with a bit of the mineral, and when, to the astonishment of his classmates, he succeeds, all the children have the right to conclude that quartz is even harder than glass.

Although little boys and girls cannot work with muriatic acid, yet the teacher may turn a few drops on a piece of quartz, and afterwards on calcite, when the children will say, "The acid doesn't do anything to the quartz, but it makes a little hole in the calcite." If a small portion of each mineral is powdered, and dropped into a test-tube, the effect of the acid will be still more clearly seen.

The half-hour has passed, and perhaps it seems as if little had been accomplished, but it matters not, so long as *the little* has opened the eyes of the children, and has brought quartz-hunting into fashion.

The present number finishes our long series of articles. If any members of the "Teachers' School of Science" have taken the trouble to read them, they have doubtless felt, with the writer, how inadequate they have been to the subject treated. As reports of the lectures, they have left the greater part unwritten. We should be deeply pained, however, to know that the little we have said has seemed untrue in letter or in spirit, to the ideal which the School of Science kept constantly before it. We have, at least, striven to show, what the school so grandly maintained, that the great work of teachers is to lead children to "think the thing with the thing in hand, rather than about the thing with books or pictures."

While writing the articles, one word has come to us which we cannot pass unnoticed. We have been told that this method of teaching is a good one theoretically, but that practically it cannot be carried out. Certainly no severer criticism can be offered. Is it true? Before we take the first step, we are apt to think the lions in the path are so many and so strong we shall be overcome; but let that first step be taken, and how quickly these lions are chained! Given three conditions, and we firmly believe "the natural methods of teaching" may be applied universally, as it has been exceptionally, ever since the days of Horace Mann.

Firstly, the teacher must have her school under her control. Secondly, she must be provided with plenty of specimens; and here we may say that, with an increasing demand for collections of typical specimens, we are confident the supply will be forthcoming. The one always has followed the other, and always will. In the meantime, the teachers, who are among the pioneers in this educational movement, find that a few hours spent occasionally in collecting, are not without their fruit of profit and pleasure. Children, also, have already helped on the good cause, and must continue to do so, as the practice of collecting is an essential element of instruction. One little boy collected, last summer, no less than forty-nine specimens of Natural History for his teacher; and if one little boy collects so many, how many can fifty little boys and girls collect? Thirdly, the teacher must have her lesson prepared in the form of logical questions, so that it may be a natural growth from the simple to the more complex.

When we say we believe the success of the method is assured where these conditions obtain, we do not, by any means, say that the teacher's work, for the present, at least, will always be easy. On the contrary, she will meet with obstacles, and many discouragements. She will see her specimens sacrificed at a most appalling rate. Slate-pencils will be driven straight through her best skeletons of sponges; carefully preserved star-fishes will have their arms broken off to satisfy the unlawful passions of distinctiveness rather than legitimate curiosity; while beautiful sea-anemones may be squeezed to see what they will do under such circumstances. If, however, the teacher succeeds in preserving her equanimity, bearing constantly in mind, as she may, that it is not the method which is at fault, but the careless habits of the untrained children, she will be rewarded in the course of months by perceiving a growing regard for the specimens handled. This regard will ripen, unconsciously, perhaps, but surely, into loving care, while warm sympathy and a joyous sense of kinship with every living thing will overcome cold dislike and narrow prejudice.

Thus the time will come, if every teacher works, when our boys and

girls shall go forth, each on his or her own voyage of discovery, seeking the truth, whatever that truth may be, with eyes trained to see, brains quick to think, and hearts brimful of love. When that time comes, and not until it does, will the object of the "Teachers' School of Science" of the winter of '79 be accomplished, and the hopes of its earnest originator and inspirer, of its hearty supporter who "worked unwearied in season and out of season," and of its generous contributors, be realized.

LET US STUDY THE CHILDREN.

BY MRS. R. R. BIRD.

V

STUDIES OF THE MIND,—OF ITS RUDIMENTARY STATE.

In our treatment of little children we have only to deal with the rudimentary state of the mind. We see that they take an infinite interest in everything; their interest once being aroused, they like to quicken and encourage it by actual experiment; what they see, they look at; what they hear, they listen to; what they touch, they feel of. Whatever has attracted their attention so far as to lead them to feel of, to listen to, and to look at, arouses in them a boundless curiosity to learn more in regard to it. This boundless curiosity is the sign of the unfolding of the mind. This indicates the rudimentary state; and, as "like assimilates like," whatever knowledge is presented to it to be taken into itself must be of a rudimentary character. Only as the mind of a child advances naturally and easily, in the same ratio must the branch of knowledge presented advance. It may seem at first slow growth; but it is as sure as slow. It is at this period that children are sensitive to impressions; that the busy little things go about gathering facts, and collecting specimens for present and future investigation. It is then that the two truisms, "Haste makes waste," and "More haste, less speed," must be born in mind by teachers of children. Many fatal mistakes, fatal to health of body and health of mind, are made at this period by some who think to hasten development of a child's mind by presenting to it facts that cannot be grasped by the mental senses and crowding it with words that, to it, have no meaning. Instead of hastening development it retards it, by fastening weights to the mental limbs so they cannot climb, and the mind grows weary with the effort. In recuperating from this weariness, an unnatural draught is made upon

the vital forces, so that body and mind both suffer. The ill effects of this unnatural course are seldom immediately seen, but become apparent later in life, when body and mind both refuse to bear its ordinary burdens.

We need have no fear of tiring the little ones with the variety or multitude of facts we may place before them. We may scatter fragments of wisdom, bits of knowledge, endlessly, — there is scarcely a branch of knowledge the rudiments of which we may not present to them; they will only pick up those which strike their fancy, perchance drop them again, to seize others which please them more, just as they gather the pretty pebbles on the sea-shore, dropping them and running back to pick up choice ones again. But never fear; although the dropped facts are passed by and apparently forgotten, they are planted in the soil of their little minds, where they are thrusting their rootlets downward, waiting a fitting opportunity to push up their little shoots of inquiries.

This is all we wish to do at first, — to scatter, and let them gather up, — the rest will surely follow. It will not be long before they will surprise us with questions about things we deemed were passed by and forgotten

Let us leave the children to themselves, free to gather what they please, and drop again at pleasure; let us not fetter them, nor say "Gather these, — leave those;" they know better than we do what is best for them, and what is fit for them. We need not think it depends upon ourselves to unfold their minds as we would unroll a piece of parchment; they will themselves unfold, in spite of us. Each little heart and brain has within it an instinct for its future needs, bents, and duties which we cannot quench nor kill, neither can we create an opposite instinct; but we may warp and distort it, so that it will fail to reach its true purpose if we insist upon the children following us instead of our leaving them to themselves. The happiness and true usefulness of many a life have been wrecked by parents and teachers who have taken from the children what they would fain gather, and made them gather what the children would fain leave.

We have only to be careful that *we have in our possession* the knowledge that we wish to present to them in its rudimentary state. They have only to make their collections, — collect their specimens for investigation and future classification and arrangement. We have only to be in readiness to give proper nourishment to the little shoots of inquiries when we first see them peeping out from the soil; afterward, when we see the time is ripe, to encourage further development by putting in their hands books which will give desired information and natural objects for experiment, and to shed whatever of our light we may bring to bear upon the subjects pursued

LESSON TO PRIMARY CLASS IN PHYSICS.

BY MRS. LOUISA P. HOPKINS.

I.

Teacher.—Prescott, yesterday I saw you drawing Dick up Union street in your cart. Was it as easy for you as to draw him down the hill?

Prescott.—No, ma'am ; but I had to hold back almost as hard, going down.

Teddy.—The cart goes itself down the hill.

Teacher.—Oh no ; something is pulling it down which you didn't see. Let go of that book in your hand ; what made it go down ?

Willie.—It is heavy.

Teacher.—What does *heavy* mean ?

Prescott.—Hard to hold up.

Teddy.—It pushes hard.

Teacher.—There is a power of the earth which pulls everything toward it. It is called gravitation. You may all write the word. It makes things seem heavy when they push hard toward the earth, or have much weight. Did you ever try to lift something which you could not lift, which was too heavy for you ?

Lottie.—I tried to lift Willie's boat, and it was too heavy.

Teacher.—The earth pulled it stronger than you could. The earth pulls all things all the time. Can you think of anything which will not drop when you let it go ?

Madge.—A feather will fly away, and a seed and leaves sometimes.

Teacher.—There is something you do not see which holds them up, although the earth still pulls them down. Who knows what ?

Maggie.—The wind blows the leaves, and the hot air will keep up any light thing over the register.

Teacher.—The air holds up everything, somewhat. A feather is so spread out, and there is so little of it, really, that the earth does not pull it down so strongly as the air holds it up, and the hot air pushes up still more than cold air. If you hold a piece of paper on the palm of your hand, your hand holds it up ; if you take your hand away, it goes slowly to the ground, because the air still partially supports it, and its substance is so spread out that it gives a large surface for the air to support, compared with the weight of it, or the force with which the earth pulls it down. Now a great part of the force which men use is used in resisting this force of the earth, or in lifting things which are heavy. The other day I saw a man lifting very heavy bales into a high

window in a warehouse. How do you suppose he did it by just pulling them up with a rope?

Teddy.—I guess he had a pulley.

Teacher.—So he did. Show me what a pulley is; draw a picture of one on the board.

Teddy.—He had a rope fastened to the bale; and it went up over a little wheel which was fastened to a beam high up, and the rope hung down the other side of the wheel for the man to pull.

Prescott.—When he pulls down, the bale goes up.

Teacher.—That is a contrivance to make it easier to pull. Such contrivances are called machines. Did you ever see a man try to lift a rock which was too heavy for him, by any other machine? Prescott, if you had been with Lottie when she tried to lift that boat, what could you have done to help her?

Prescott.—I might have pried it up with a stick; or, if I could have got a crowbar like that the men had to get those stones for the cellar up on to the truck, I could have done it easily.

Teacher.—Yes, the crowbar; that is a machine; a very simple one; only an iron bar. It is like having a very long, strong arm, like a gorilla. Aren't you glad that God gave a man a mind to think of machines, and did not have to make him like an ape? What other machines has man invented to help lift? I will make this square to represent the heavy thing which is to be lifted. Here is a line for the string to lift it by. Now let us have it wind over this axle, which has a handle at the end, for a man to turn. What does that look like a picture of?

Class.—A well, and drawing up the bucket.

Teacher.—Yes, it is a machine called a windlass. It is easier to put the strength of a man, or of a horse, or of steam, or any other power, upon turning that handle, or what is the same thing, turning a wheel, than it is to set it at work merely lifting. Now, in the pulley, which is a string running over a wheel, you can easily set some other force than man's strength at work. I will make this picture of the bale of goods, and the rope which lifts it running over the wheel. Now, instead of having a man pull the rope down, suppose I want a horse to pull it; what shall I do?

Teddy.—Make another wheel, fastened to the floor of the loft, and let the rope go round that, so that a horse can be fastened to it and walk along, pulling it, and back when he lets it down.

Teacher.—Suppose I can't get the horse up into the loft very well?

Prescott.—Why, let him be down on the ground, and have the other pulley down there, and it will be all the same,—just as they do at the coal-yards to load the vessels with coal.

Teacher.—Tell me of all the machines you have seen, for the next lesson. Write the names of them on a paper, and be ready to explain when and how they worked when you saw them; and if you ever have something to do which you think at first you cannot do, set your wits at work to think of a way to get some other power to help you. Invent a machine to do your work for you. That is the way for a Yankee boy or girl, and for every one who wants to accomplish much in the world.

HISTORY IN PRIMARY SCHOOLS.

BY JOHN J. ANDERSON, PH.D.

V.

DE SOTO'S EXPEDITION.

NOTE.—A large outline map of the western continent should be hung up before the class; also, one of the United States. The exact location of every place, as its name occurs, should be carefully pointed out. The teacher should not do any more of this than is absolutely necessary; but it should be well and fully done, as far as possible, by the pupils. The privilege, for such it will prove to be under good management, should be participated in by every member of the class.

You have now been told of De Leon and his foolish attempt to find a fountain that would make old men young; and you have also learned how Balboa climbed the mountains at the Isthmus of Panama, and discovered the Pacific Ocean. While these men were busy, as we have seen, other Spaniards were also busy making explorations, and still others came after them in like manner. Just here it would be well for us to ask a question or two about the motives that prompted these men. What object had they in view? Was it merely to make discoveries? Did they hope to gain glory, and so have their names spoken with admiration by their countrymen, as well as the other people of Europe? Or, was their ambition confined to the desire to add new lands to the territory already possessed by Spain, and thus increase the domain and power of their country? These considerations, no doubt, had some influence upon them; but there was one desire which we have not named,—one greater than all these,—and so fresh was it that it became, as we say, their ruling passion. They wanted gold. For this they left their country, their homes, their wives, children, and friends; crossed the ocean, penetrated forests, swam rivers, climbed mountains,

and fought Indians. Discoveries and explorations were to them of some importance, but of far less than gold. And now that we know this, we are able to get a better understanding of the character of many of the expeditions in America, conducted by the Spaniards, that directly followed the great discovery made by Columbus.

Among the most notable of these Spaniards were Pizarro and Cortez. The former crossed the Isthmus of Darien, and, reaching Peru, treated the people of that country in the most cruel manner, put to death their king, and took possession not only of their gold and other riches, but of their country itself. Cortez was equally cruel, but was not so successful in getting gold. He invaded Mexico, and after a stubborn resistance on the part of the natives, in which thousands of them were killed, including their beloved king, Montezuma, Mexico was conquered. In this way, both Peru and Mexico became the property of the Spanish king. The man who had aided Pizarro most to gain riches in Peru was Ferdinand de Soto. This man, De Soto, with his share of the ill-gotten spoils, amounting in value to many thousand dollars, returned to Spain, where he, a soldier of fortune a few years before, whose entire property consisted of a sword and buckler, at once began to live in grand style. He appeared at Court, and, with his rich dresses, spirited horses, his pages and lackeys, made a brilliant display, and won the heart of a lady of distinguished rank, to whom he was soon married.

We often hear it said that the more a man gets the more he wants. It was so with De Soto. He had gold enough to last him all his life, and yet he longed for more. About that time a person who, some years before, had been on an expedition commanded by a man named Narvaez, who, with the expedition, had landed on the coast of Florida, and who, after nearly all his companions had perished, had wandered for years in the wilds of America, and had at last succeeded in getting back to Spain, again and again asserted that Florida was the richest country in the world. The story produced a great excitement, and so much effect did it have upon De Soto that he went to the king, Charles V., and asked permission to fit out an expedition to conquer the country. He offered to do so without the help of a dollar from the Royal treasury, promising to give the king one fifth of all the gold he should procure. Charles, you may be certain, did not hesitate long. He not only granted the request, but he made De Soto governor of Florida; also of Cuba. You must not think that the parts of the United States we now call Florida was all of the country then known by that name. When the Spaniards spoke of Florida in those days, they meant all the southern part of North America, from the Atlantic Ocean to Mexico. They did not pretend to tell what were the northern limits of Florida, for their notions on the subject were not very clear.

When it became known that the gay and rich cavalier, De Soto, had resolved to form a great expedition for conquest and gold, in the new world, the excitement was wonderful. In every part of Spain, and in Portugal, too, it became the subject of earnest conversation. Young men, hundreds and even thousands in number, went to De Soto and besought him to let them join the expedition. These men, you must understand, were not from the ranks of the poor and the outcast; they were the sons of noblemen, or were men who had already achieved renown in the wars with other countries, or companions of De Soto in the conquest of Peru. Six hundred of them were finally selected, and these, with their servants and horses, and accompanied by a goodly number of Catholic priests, were taken on board the fleet, which consisted of seven large and three small ships. On board the largest ship went De Soto and his wife.

At one of the Canary Islands, where the fleet stopped three days, the whole company was entertained with feastings and rejoicings. Again the vessels set sail, and after a pleasant voyage reached Cuba. Then there were more feastings and rejoicings. A whole year was spent at the island, during which time some of the ships were sent to examine the shores of Florida, and find the best harbor. A good report having been brought to De Soto, he made his final preparations, and, leaving his wife to govern Cuba in his absence, once more set sail; but contrary winds tossed his vessels about several days. At length, however, he reached the Florida coast, and at a place which we now call Tampa Bay, on the west side of the peninsula, the anchors were dropped. The Indians, who had discovered the vessels approaching, and then had seen them stop in the bay, were not willing that the Spaniards should come among them, for they remembered the wrongs that had been done by the white men who had been among them before. From behind the trees and hills they shot their arrows at the men in the first advance of the little boats that put out from the ships; but what could arrows avail against coats of brass and steel? All the Spaniards, with their horses, and a large number of swine that had been presented to De Soto in Cuba, were safely landed. And now the expedition was ready to begin its wonderful march.

NOTE.—The route from Spain to Tampa Bay should be carefully traced on the wall-map; and the location of the Canary Islands; of Havana, where De Soto made his home in Cuba, and of Tampa Bay, should be clearly pointed out.

ZOOLOGY FOR THE LITTLE ONES.

BY CLARABELLE GILMAN, JAMAICA PLAIN, MASS. ●

VIII.

THE SEA-URCHIN.

On the sea-shore, after storms, we often find small sea-urchins, though the larger ones must usually be sought on the rocks or under stones just below low-water mark. But some one asks, — "What can we make out of those bunches of spines?" Not very much, perhaps, out of those alone; you want, also, some shells from which the spines have been washed off by the waves. If you cannot find enough prepared in this way by the ocean, you can put some of those which have the spines on them into a very weak solution of potash, after which you can easily clean the shells with a tooth-brush.

Specimens treated in this way, however, must not be left too long in the solution, or the plates of the shell will be separated by its action. If you cannot find perfect shells without spines, you may come across some pieces. Pick them up, and treasure them carefully, for they will be useful in studying the plates from the inside. The best sections for study are made by sawing the perfect shells in two horizontally. Though few teachers may be able to procure forty or fifty specimens of each kind, yet by a little care those that they have may be so distributed that every pupil will be able to see all the parts, both inside and outside. Sea-urchins that are gathered alive will retain their spines better if put into alcohol before being dried.

"What is this?"

"A sea-urchin."

"Yes. It is also sometimes called the sea-egg, on account of its shape. Did you ever find any of them yourself?"

I used to find them last summer, on the rocks at Nahant."

"Mrs. Agassiz tells us about the houses that the sea-urchin makes for himself in the rocks. These houses are little holes just large enough for him to pack himself snugly away in."

"What is the shape of the sea-urchin?"

"It's round."

"Is it like this ball?"

"It's something like it."

"How could we make the ball just the shape of the sea-urchin?"

"We could press it in at the top and the bottom."

"Now, how shall we describe the shape of the sea-urchin?"

"It's like a ball flattened at both ends."

"With what is it covered?"

"With long spines."

"What else have we studied that had spines?"

"The star-fish."

"Are these spines like those of the star-fish?"

"No; they are longer, and when you touch them, they come off just as easy as can be."

"What do you suppose these spines are for?"

"To keep things from hurting the sea-urchin." "To help him walk."

"Yes; he uses them for both purposes; to help him walk, and to defend himself. Now, you may each of you pull off just one large spine, and see what is left where it came off."

"There's a little knob."

"Examine the end of the spine where it came off from the shell, and see if it could fit over the knob."

"There is a little hollow in the end of the spine, that the knob fits into."

"The knob on the shell and the cup in the spine make a sort of ball-and-socket joint; so we say that the spines are attached to the shell by a ball-and-socket joint. What is it, Freddie?"

"What keeps the spines on the shell?"

"There are muscles to keep them in place, and muscles to move them, too. By pulling off the spines, we have found the knobs underneath. Now let us look at the shells without spines, and see what are left when all the spines are off."

"Lots of knobs."

"Are the large knobs scattered around on the shell without any particular order?"

"The large knobs are in rows"

"You may count the rows of largest knobs."

"There are ten rows."

"Are the rows all the same distance apart?"

"No. First there are two rows of large knobs pretty near together; then there's a place with only little knobs; then two more rows of large ones."

"If we call every two rows of large knobs a double row, how many double rows are there on the whole shell?"

"Five double rows."

On the large spines the children will be able to see the fine vertical lines marking the outside, and they will be interested to know that, if we were to cut a thin cross-section of a spine and put it under a microscope, we should find it ornamented with a beautiful pattern, and also, most wonderful of all, that this pattern varies with every kind of sea-

urchin. The spines of some kinds are long and large, and are used as slate-pencils.

In the study of an animal which presents so many points of difficulty as this, we want to bring in every fact which can possibly help to keep up the children's interest in the lesson.

We next find the mouth, which is easily known by the five teeth that close up the opening with their pretty, white star. The opposite side of the body is the back. We must find the mouth at this time in order to locate the circle of forks that we shall presently discover.

"What did we find among the spines on the star-fish?"

"Little forks."

"How many prongs do they have?"

"They are two-pronged."

"What is it thought they may be used for?"

"To clean off bits of dirt."

"The sea-urchin has little forks, too; but they have three prongs, and are on long stems, so that they can reach out beyond the spines. This is a picture of one that I am drawing on the blackboard. We *know* that these are used to pick up waste bits of food or other things, and carry them off from the body. If you look now at the perfect sea-urchins, around the mouth, only a little ways from the teeth, you will see a circle made of clusters of these forks. Why do you think there are so many around the mouth?"

"To pick up pieces of food that the sea-urchin doesn't want, and throw them away."

"Do you think we must have found everything on the sea-urchin by this time? We have hardly begun to discover all the wonderful things about him. How many of you like to hunt for things? All of you? Well, you have a splendid chance now. I want you to hunt for the tube-feet. Look on the underside of the shell, near the ends of the rows of spines, because you can see them most plainly there. They look much shorter than the spines, and the suckers on the ends of them are light brown, round and flat, with a little hole in the middle."

The children will have some trouble in finding these, and it will be best for the teacher to go round among them and see that they really have found the suckers and are not looking at little spines or small knobs on the shell. In our own school we had a long search for them, and it was necessary to direct some of the scholars to look at a particular spot on the shell in order for them to see the suckers at all. They should find them alone, however, if possible. A blackboard sketch of a sucker seen from above, will help on this search. A good picture of the living sea-urchin may be found in *Seaside Studies*, by Mrs. Agassiz, also in No. IV. of the *Science Guides*. If this picture is shown after the

tube feet have been found, the pupils will understand how the animal can walk by means of them. It is said that in every species of sea-urchin, however great the length of the spines, the tube-feet can always be protruded beyond them.

This brings us to the question, — How can they be protruded? This cannot be fully explained without the use of apparatus, but we can follow the path that the water takes. Since the water-vascular system in the sea-urchin is, in all essential points, like that of the star-fish, we review by means of a dissected star-fish. Starting from the sieve, we trace the course of the water through the large tube, so plainly seen, to the ring around the mouth, then into tubes that carry it to each arm, from which branches lead to the tube-feet. Now we look on the back of the sea-urchin for the irregularly five-sided sieve, either greenish or brownish in color, and find it beside the small central disk. The children readily know it by its spongy appearance. Now we once more describe the course of the water, this time applying it to the sea-urchin. If, however, one could not have a dissected star-fish, it would be better to say only that the water is filtered through the sieve, and passes by sets of tubes to the tube-feet, which are forced outward by its pressure.

Referring to the star-fish again, we remember that the tube-feet pass to the outside of the rays between the ambulacral plates. Then we return to the sea-urchin, and, looking at the inside of the bare shells, we discover the rows of tiny openings through which the tube-feet pass outward. We notice that these are openings through the plates, and not between them, as in the star-fish. We find that the shell is composed of plates, some much larger than the others; that these plates are arranged in definite rows; that there are ten rows of large plates, and as many of the small ones; and that every two rows of small plates alternate with two rows of large ones. The small plates are the ambulacral plates, and the large ones, the interambulacral plates.

The little "bunch of spines" with which we commenced, has so broadened out in every direction that it will not be compressed within the limits of one short article, but must be finished and compared with the star-fish, in a paper for another month.

RULES FOR TEACHING. — Teach one thing at a time. Teach that thing well. Teach its connections, as far as possible, with all other things. Teach that it is better to know *everything* of *something* than to know something of everything. — *Davis's Logic of Mathematics.*

PRACTICAL LESSONS.

BY ALICE M. GUERNSEY.

I.—VENTILATION.

Every teacher knows, — or should know, — the magical effect of fresh air upon a weary, listless, inattentive school. And every teacher should teach her pupils the importance of well-ventilated rooms, and the especial need of fresh air, winter as well as summer, in sleeping apartments. What facts shall we teach?

1. The blood which has traversed the body is of a dark blue color, and unfit for nourishing the system.

2. It is sent to the lungs, becomes there a bright red color, loses its impurities, and is again fit for use.

3. To effect this change, fresh, pure air is needed.

4. Show that the exhaled air contains a gas which will not support combustion, and teach that this gas is poisonous to life. "Breathe into a jar, and on lowering into it a lighted candle, the flame will be instantly extinguished, thus indicating the presence of carbonic acid gas."

5. Call attention to exhalations from the skin that taint the air.

"On uncovering a scarlet-fever patient, a cloud of fine dust is seen to arise from the body, — a contagious dust, that for days will retain its poisonous properties."

6. Necessity of thorough airing of bed-clothes; of ventilation of closets and wardrobes; of removing at night *all* clothing that has been worn through the day.

7. Tell the story of "The Black Hole of Calcutta," etc. Facts like these, of practical benefit, form an excellent basis for language-lessons, and may be used in nearly every school, even if no systematic study of physiology is undertaken. Add to the precept the example of fresh air in the school-room. A good way to secure this, and yet to avoid drafts, is to place a strip of board, four or five inches broad, and the length of the width of the window, under the lower sash. This allows a constant inflow of fresh air between the sashes, but as the current is upward, there is no direct draft. *Open all the windows wide* at recess and noon, so that the air in the room may be completely changed; open them, too, if it can be safely done, during gymnastic exercises.

Whatever else you may or may not accomplish, teach the embryo sextons under your charge, not to shut up in the church, from week to week, the air of by-gone Sundays.

For useful hints, refer to the leading works on physiology.

AS LITTLE CHILDREN.

BY KATE L. BROWN.

It is a beautiful morning in spring. The windows are partly open, and frolicsome sunbeams steal in through the lilies and roses, lingering in sunny curls and rived only by the light in happy eyes. The ten little blossoms of Mrs. Gardiner's kindergarten are engaged in their work, content as only busy children can be. They have been laying various figures with colored tablets, but now at the word of direction, the cards are put away in the boxes, and the bundles of sticks are taken out of the drawer. "Who would like to help me?" inquires the kindergartner. Flossy Arnold is chosen, — darling Flossy, who is loved by every one, and more now than ever, because God has lately taken away her dear father. A little bundle of sticks is placed before every child, and the lesson begins. One stick is placed upon the table, and is talked about for a while. Presently the kindergartner says, "I am thinking of *one thing*. We cannot see another like it! You have all seen it many times." The children look at one another, but do not speak. "It peeps into our room through the windows every morning, the flowers are so glad to see it!" "The sun! it is the bright sun!" shout ten eager voices, and loving eyes look toward the lilies and roses now basking in the golden glow. "The sun is a kind friend; it gives light and heat," resumes the teacher, "Do you know what else it does?" "It gives color to everything," says Daisy. "It melts the snow and ice!" "It makes it pleasant for us!" This last is from Anita, who is a veritable sunbeam with her bright face and gold-crowned head. "Can any little child tell us of *one* other thing, of which there is *only one*." "There is one God!" This is from Marie, who sits with her arm about Flossy, whose lonely little heart cannot forget its sorrow, even in the happy life of the kindergarten. "He is our good friend, — our Father!" "He gives us everything we have!" A hush has fallen over the group, a sweet awe and gravity has stolen over childish faces. "Is He not good, auntie?" asks Bernard. "Very good, my boy, and how should we feel toward Him?" Ethel, the youngest child, looks up with a world of love in her eyes: "I shall say, 'Thank you, God, for giving Girl such nice things.'" "How does God feel when He sees children selfish and angry at one another?" There is silence, and on two faces there steals a blush of shame. Four eyes are cast down; they cannot bear the mild, loving gaze of the kindergartner. "He is sorry," falters Bertha, while Anita murmurs, "He feels bad!" Bertram has

crept to Auntie's side, and looks in her face with pleading eyes: "I will be good! I will give Prescott a part of my orange! I will not make the dear God sorry again." Prescott looks up quickly, and with a sudden burst of feeling, cries, "I won't strike Bert again, when he wont let me have a piece of his orange!" "God is pleased and happy when children are sorry for their selfishness. A good, happy child is like a little sun, making everything bright and joyous. See if you cannot all be good and happy, so that I may have *ten* little suns to warm and light my kindergarten." The lesson went on, and bright, indeed, was the schoolroom with the sunshine of sweet faces. As the roses and lilies drank in the light, so each child-heart absorbed the pure and life-giving influences shed so freely around. As I walked down the street, on my way home, a saying from an old Book came to my mind: "Except ye become as little children, ye cannot enter in!" and the prayer arose in my heart, the burden of which was, "Father! give *me* the child's unquestioning trust, that I may enter into all joy, and life, and light."

HOW TO SEE A SEED GROW.

Many little folks wonder how a seed grows. Some boys and girls have taken up the seed after planting it in the ground, and thereby prevented it from taking root.

We may, however, see the roots shooting out from the hyacinths and other bulbs that we grow in glasses in our windows. And in this way we may see other seeds sprout and shoot.

A gentleman, to gratify his little sons, took a glass tumbler, round which he tied a bit of common lace, allowing the lace to hang or droop down in the center of the glass. He then put enough water in the glass to cover the lower part of the lace, and in this hollow he dropped two sweet-peas. The little boys were told to look at them every day, and they would learn what was going on under ground with similar seeds.

Next morning the boys hurried from the breakfast-room to look at the glass with the peas in the south window. They found that while they were fast asleep the little brown skins had burst, and a tiny white sprout was seen on the side of each pea. The little sprouts soon grew long enough to reach through the holes in the lace, and on the top of the peas two little green leaves were seen.

In time the boys saw the white thread-like roots reach almost to the bottom of the glass, while the green leaves grew large and gave way to a stalk or stem.

In this way most seeds may be seen to grow.

—*New York Observer.*

THE GRAND STRUGGLE.

The course of the weariest river
Ends in the great gray sea ;
The acorn for ever and ever
Strives upward to the tree ;
The rainbow, the sky adorning,
Shines promise through the storm ;
The glimmer of coming morning
Through midnight gloom will form.
By time all knots are riven,
Complex although they be,
And peace will at last be given,
Dear, both to you and to me.

Then, though the path be dreary,
Look onward to the goal ;
Though the heart and the head be weary,
Let faith inspire the soul.
Seek the right though the wrong be tempting,—
Speak truth at any cost ;
Vain is all weak exempting
When once the gem is lost.
Let strong hand and keen eye be ready
For plain and ambushed foes ;
Thought earnest, and fancy steady,
Bear best unto the close.

The heavy clouds may be raining,
But with evening comes the light ;
Through the dark are low winds complaining,
Yet the sunrise gilds the height ;
And Love has his hidden treasure
For the patient and the pure ;
And Time gives his fullest measure
To the workers who endure ;
And the Word that no law has shaken
Has the future pledge supplied ;
For we know that when we "awaken"
We shall be "satisfied."

— *Anon*

OUR NOTE-BOOK.

MY CLASS.

BY MRS. LOUISA P. HOPKINS.

My little class, I kiss them
 As they go coily by;
 I snatch them, smiling truly
 In each quick sparkling eye.
 They march on to their classes,
 Bright maiden, little man,
 They look so grand and happy,
 Reciting all they can!

Teddy, the rogue! so shyly
 He tiptoes by my chair,
 And Madge is stealing slyly
 To pass me unaware.
 They think I did not mind them,
 They stand up in the row,
 And to the map or blackboard
 They are so proud to go!

They say the lesson glibly,
 They point to every place,
 Success is pictured fairly
 On every happy face.
 The figures in white columns
 Are added up so fine,
 And stand like plumed soldiers
 In true and steady line.

I praise them and teach them
 With all the skill I know,
 Then on to where I reach them,
 I come with paces slow.
 And when I stand beside them
 I snatch them as they turn;
 My darlings! love's the lesson
 I give you now to learn.

The importance of good reading for the young as an element in elementary education is coming to be recognized by all intelligent educators. The cultivation of the taste at an early age will last during the life-time of the individual. The reading of young children requires a wise supervision, not only as to its kind but also as to how it is done. Much of this watchful care naturally falls upon the parents, and yet the relation of the teachers is such to both child and parents that they have responsibilities and duties, associated with this phase of culture, which we hope they will gladly assume and perform. Every child should begin to form the nucleus of a *permanent library*, and the teacher can suggest and aid in the selection of proper books for such a library. Encourage your pupils to preserve every good book that is given them, and to regard it as one of the treasures that will increase in value as they grow older.

The primary teacher should be well informed in regard to the character of current juvenile literature, and be qualified to advise with parents and suggest to pupils what books to buy, remembering that it is not the multitude of books that are read which is important, so much as their excellence. They should also teach the children how to read, in order to secure the greatest profit, knowing that, like all intellectual employments, much depends upon the manner in which it is pursued.

Our space this month is limited, and we can only make these few general suggestions, and urge upon our readers the importance of engaging with the pupils and parents, in the work of securing for every member of their schools the foundations for a permanent library of choice books, on all subjects that

will enable the child to gain valuable information, and cultivate a taste for what is beautiful and useful in literature.

Good words from those who are qualified to judge of our work as educational journalists are always pleasant and stimulating. We lay aside our modesty and quote for our readers a paragraph from one of the soundest daily papers in the country educationally, the *Boston Daily Traveller*, which has a trained educator on its editorial staff, to whom all educational topics are referred, and whose professional experience and training fit him to express opinions worthy of consideration. This is what he says of our magazine, which is devoted to the interests of primary instruction in America :

"THE PRIMARY TEACHER, which has been in existence three and one half years, has been the nearest an ideal educational publication of anything that has ever fallen under our eye. The field is definite; there are few subjects assigned to the lower-school grades; it is easy to make definite suggestions; and this monthly magazine carries to the primary teacher the simplest, clearest, definite suggestions relative to the work of the school-room, and has done more to elevate primary-school instruction than all other forces combined. It has inspired the young teachers with a zeal that is most essential to success, and has put into their heads methods, and into their hands appliances for good teaching."

We find the following apt and concise suggestions in one of our valued exchanges, and commend them to the special attention of teachers of young children :

I. — HOW NOT TO GAIN ATTENTION.

By demanding it as a right.

By begging it as a great favor.

By scolding the scholar for not giving it.

Attention is not to be gained by special indulgence or by rewards.

It cannot be secured by threats.

Hearing the lesson rather than attempting to teach it, will not be likely to gain attention.

Reading the lesson from a book will not fasten the mind upon it.

Endeavoring to teach truths which the scholar cannot comprehend will not secure his attention.

Presenting a confused combination of ideas will prevent the attention of the scholar.

The use of words not understood, or using words so inaccurately that they convey no definite idea, will not command the intelligent attention of anyone.

II. — HOW TO GAIN ATTENTION.

By telling the child something which pays him for giving attention.

By giving information in a manner which the scholar will count it worth his hearing.

Interest the scholar in a subject, and he will cheerfully give attention.

Under some circumstances children are capable of vigorous and long-sustained attention. Nor can we find a better illustration of mental absorption than the schoolboy engaged in a match of cricket or football.—*W. H. Groser*.

The attention of children is not much under the control of the will, but depend upon the interest which they feel in the subject.—*Groser*.

Awaken the scholar's sympathy with the subject, and he will give earnest attention.

Excite curiosity in the mind, and cheerful, earnest attention follows.

Curiosity in children is but an appetite after knowledge. I doubt not but one great reason why many children abandon themselves wholly to silly sports and trifle away all their time insipidly, is because they found their curiosity baulked and their inquiries neglected.—*Locke*.

Bring a distinctly before your own mind the well-known fact, that children delight as much in exercising their minds as their limbs; provided only that which is presented to them be suited to their capacities and adapted to their strength.—*Dunn's Principles of Teaching*.

Be intensely interested in the lesson yourself, and you will interest scholars and gain their attention.—*S. S. World*.

Editor of Primary Teacher :—An earnest and far-seeing mother writes :

"I do not object to the public school on common grounds. It seems to me that the pupils become very proficient in the different branches, and right habits of study are formed. But I notice that after I send my children to school they lose all their little home ways. They drop their former simplicity, and become artificial; they lose that unconsciousness which forms the chief charm of childhood, and become self-conscious. They deteriorate in good manners, becoming embarrassed and awkward where before they were easy and free."

Every person of penetration has in some degree seen this very change working in children, and the justice of the criticism will be plain. The question arises, "What are the causes, and to what extent is the *teacher* responsible?"

Let us consider the experience of the home child who for the first time finds himself in the school-room. At home he trots about all day, and if he is a healthy child he is not still for a moment. Every separate play is full of meaning to him,—it has the significance of real work. And what is the child's work but *play*, quite as absorbing as the broker's career on 'Change, and a thousand times more fresh and natural. He comes into the school-room, and thus into a new atmosphere. He soon finds that he is limited in his circle of operations. At home it was right for him to circulate over the whole house; at school he is to remain in one place. At home he may sing, talk, shout at will; at school he must do these things by rule, and at set times. But some one will say, "Would you have from thirty to fifty small children following out at will the spontaneous impulses and activities of childhood? Would not the school-room become a scene of confusion?"

Very true. But the real point is, "Have you made the transition from home-life to school-life an easy or a violent stage? Have you considered the real significance of home occupation, and made a connection between that and school occupation?" In kindergarten training this question is easily solved. Play is made the basis of work, and the child is gradually led on, step by step, from that which merely serves as an expression of his activities, to that which is in itself of service to others. But in the average primary school no allowance is made for the peculiarities of the little new-comer's condition. From the very first he is expected to fall directly into new ways and become a school-child at once. Hence arises the habits and losses which this careful mother has indicated. If we look to God's ways of working, we shall see that in both nature and experience does He lead step by step, taking the facts and conditions of the past as a basis of to-day's development. Growth in both mind

and matter is by easy transitions ; proceeding from the known to the unknown so easily and painlessly that it cannot be told where the old left off or the new began ; only we know that we are now what we were not a month,—a year ago.

Do we not grasp here a very valuable and practical truth ? Looking at our work in its light, must we not plead guilty of having made great leaps where there should have been connection ? Have we looked at our works in its relations to the past of our pupils, and also to what awaits them when they leave us ? Has their training with us stood an isolated experience, answering only for itself ? Or, has it been a link in the chain of the child's life-experience ? It will be asked, " Grant your criticism to be true, how shall we make this connection and thus avoid the dreaded collision ? "

In the first place, the first occupation of school-life must be mainly a *reproduction* or a *continuation* of the plays of home-life. In one school, where the conditions are unusually favorable, the intelligent teacher proceeds on a plan very much like the following : In the first few days of the opening term, the time is entirely spent in getting acquainted with the children, helping them know each other, and in occupying them so happily that life seems like one grand, good play. And indeed it is play, and Miss —— is the chief play-fellow. Great pains is taken to interest the little ones, and each occupation is changed as soon as there is conscious weariness. While one company are looking at the gems in *Babyland*, another is stringing beads or bright straws, while a third group is clustered about the teacher's knee, talking about a picture or a pet cat at home. Or perhaps the whole school is listening to a story, or is playing some delightful game. At the end of the first few days or week the children have become impressed that school is a delightful place, and that Miss —— is the jolliest playmate of the whole. They have also learned through play to do certain things together, such as to turn, rise, file, pass books or playthings. They have also learned to say habitually, " Thank you," when receiving anything from teacher or pupil ; also " Good morning," in return to the teacher's salutation." They have also learned how to use a pencil, clean a slate, take a position for listening or work. The teacher has secured their affection and obedience ; they are now ready to do what she wishes of them. Perhaps after a little the red ball, which is now recognized as a playmate, has a little story for them, which forms the basis of the first reading-lesson. The blocks out of which such a castle has been made are used for the first number-lesson. Play becomes more and more significant, and merges into work, though never losing sight of its first estate.

We do not give this as a model to be followed in all cases. But simply point it out as the way in which one earnest young teacher has solved the problem for herself, to our mind, successfully. Has not some other teacher wrought out the same work, and will not she give a leaf of her experience through the columns of THE PRIMARY TEACHER ?

MARION THOMAS.

Editor of Primary Teacher :—I have become greatly interested in the contents of " Our Note-Book." Although every teacher in the land is supposed to have his or her particular method of teaching and governing a school, yet we enjoy hearing the experience that others have had in the work. We like

to improve our modes of instruction. etc. "Teach under high pressure, govern under low pressure," has been recommended as a rule for teachers to follow. A teacher taking this rule for her only guide will seldom meet with success. A badly-governed school, with the best of instructions, will amount to but little more than naught. Order in the school-room is the whole secret of success. To have order, it is not necessary that the teacher should be continually storming and scolding; the pupils will soon cease to care for that, and will lose all respect for the teacher. All pupils cannot be governed in the same manner: one must be persuaded, another driven, etc.; and it is our duty as teachers to study the nature, the character of every child placed in our care, that we may fully understand the treatment each child should receive to promote its advancement.

The little deeds and words of a man show the main point of his character; and it is the many little things properly attended to, that decide the teacher's power to control the school and keep perfect order. But some one says, "I don't have time to attend to the little things; the larger ones engross all my time." My answer to this is: Beware of the little difficulties, and the larger ones will not appear. Be kind, but very firm with your pupils. Do not threaten and not carry your threats into execution. Do not punish too hastily; give yourself time to think the matter over, and decide on the best course to pursue. Then you will not have to suffer the remorse of conscience, and say you did so and so because you were angry.

A teacher's position is a hard one to fill correctly, and requires a great deal of perseverance and self-denial on the part of the teacher. When speaking of a *teacher*, we do not mean a person that goes into the school-room and merely hears the recitations, then goes home and puts away all thoughts of school until the morrow. No; a true teacher is one that teaches by precept, and is thoroughly prepared to instruct. We should set the example we wish our pupils to follow. We should never do anything we have forbidden them to do, or would make us blush should they know of it. Indeed, our influence does not cease with the school-room. Children are natural imitators, and they are constantly watching the teacher and observing his or her motions. Explain to your pupils the necessity of punctuality, regularity, and attendance, if you would have your school accomplish its design.

Arcola, Ill., Jan. 24, 1881.

C. E. L.

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THE PRIMARY TEACHER.

VOL. IV.

MARCH, 1881.

NO. 7.

COMPOSITION - WRITING.

BY STELLA.

"Will some one give an exercise in composition-writing suitable for children in their third and fourth year of school, etc. M W. L."

Pupils who are in their third and fourth year of school have of course become perfectly familiar with blackboard exercises, and so we will take up this lesson with the use of the board. The class should be divided into sections of ten or twelve in each. Commence the lesson with a short exercise in the light gymnastics, so that there will be no dull or drowsy pupils, nor any lazy inclination on the part of any one.

Write upon the board, "HORSE."

Teacher. — What is this word I have written? Class reply, "Horse."

The teacher should then call attention to the animal known by this name, make some allusion to his being the most sagacious of all animals, perhaps read some little anecdote of the horse; tell them the story of once having been in a family where the horse was seen to attempt to pump water for himself, in the same way he had seen it done by his master; viz., by lifting the pump-handle, and of his evident surprise, when he found no water in the trough after his repeated efforts to obtain it. This will bring many pleasant questions, and the class will be found to be thinking about the *horse*; then call upon Willie, Annie, Henry, and Essie to go to the board, and each one write a sentence about the horse.

Willie writes, "The horse is a large animal." Annie writes, "Our horse is gentle and kind to us all." Henry writes, "Our Jim, the coachman, says that our coach-horses are the best ones in the town." Essie says, "I love a good horse, and I will never strike one."

Teacher. — Very well; Alice, Effie, John, and Charles may each one write a sentence.

Alice writes, "The horse is a tame animal." Effie writes, "Our pony is a small horse; Jack said so." John writes, "I can drive our

cart-horse, but papa will not allow me to drive Fleetfoot, his buggy-horse, for he says it is not safe." Charles writes, "I think it is very wrong to abuse a horse as some persons do."

Teacher. — We will now all take the slates and write the subject of this lesson ; it is "THE HORSE." And now I will call upon Essie to tell me something that has been written about it.

She replies, "It is very wrong to abuse a horse"

Teacher. — Why ? (putting the question to some member of the class who has not written upon the board). The reply will be, without doubt, because he is so gentle and kind.

Teacher. — Are all horses so ?

"No ; some horses have to be whipped, they are so hard to manage ; papa says so."

Teacher. — Would it not be best, in all cases, to try kindness before they are whipped ?

All the class decide that it would be best.

Teacher. — Now we have got a good start in our composition-writing. John, you may tell us what we shall write next.

He says, "Some horses are strong, and are used to do hard work and draw great loads ; others are only used to draw light carriages."

Teacher. — Very well ; all pay close attention and write each sentence, — not, perhaps, in the exact words that are given by John. Henry may give us a sentence.

He says, "Coach-horses are fat and smooth, while cart-horses are sometimes poor and rough."

The teacher can here show the class why this is often the case ; viz., coach-horses are kept very nice by their groom or driver, and are used only once or twice a day, while the hard working horse is used all the time every day, and often does not have a very nice bed at night, or receive much care from his master. This should be told them in a simple manner, so that all can understand and will be impressed with the fact. This will bring out much of sympathy and good-feeling for the often-abused horse.

Teacher. — Annie may give us a sentence

She says, "Mr. Goldwin's horses are white ; there are many different-colored horses."

The teacher will see, by these last sentences, that each scholar called upon has given, *not their own*, but a different one from the one *they* wrote upon the board, "in honor preferring one another." This will probably take up as much time as the teacher has to spare for this exercise to-day ; so she now calls upon Annie to read what she has written upon her slate.

She reads : "It is very wrong to beat or abuse a horse, because he

is gentle and kind ; yet some horses are very hard to manage, and so they have to be beaten ; yet it would be better to try kindness before this is done. Some horses are strong, and are used only for hard work ; others are light and quick, and are used in carriages. Coach-horses are taken nice care of and are sleek and fat ; but cart-horses are poor, and often their backs are all rough."

The teacher will now occupy a few moments more in a familiar talk about horses. The history of the horse may be told ; mention the great variety there are, and that they are found in all parts of the world ; tell the class that if each one tries they will be able to find out many very interesting things about the horse, and that they are expected to do so before another lesson. It is of no use for the teacher to attempt to show a want of clearness in some of their sentences *at first* ; accept what they present ; they have as yet no knowledge of grammatical construction or any idea of it ; and so it is only for the teacher, by her *choice* language and faithful adherence, to use the most pure expression, and also the highest type of expression, when she is before the class, — *aye, always*, — and the little ones will catch the *style*, and so will involuntary "*glide* into at least a goodly degree of expression." She should suggest that a sentence should assume a pleasant, — *aye*, a perfect form ; and step by step they will be led on until the "goal is won."

Each section of the class can listen to the others, when they are not engaged in the direct lesson, and will gain much in this way. Give them *simple* instruction and encourage only simple ideas ! Do not try to have them feel that they are writing a composition ! — oh, no ! — but give them the same idea of this exercise and its relation to composition-writing that you would give a class who were just commencing to learn to add numbers, that *it* would bear to the future learning of higher mathematics ; viz., that it *must be learned first*, or the higher would never be reached.

I am very glad that so common a mistake of former years is being rectified ; viz., the idea that a scholar should never be called upon to write a composition until he was able to produce something finished and of real merit. Sometimes the "spread eagle" was greatly commended. Let these lessons commence in all our schools of the first grade in a simple form, going on in a progressive manner ; but see to it that the *root* is well established before expecting the full and beautiful tree. And it is so delightful and beautiful a lesson to give ! It lights up the monotony of other lessons ; it is a joy to every little heart, making sunshine all through the class ; and no dread of the future time to come, when the pupil has "got to write a composition." "Oh, dear ! it is such a hard thing ; I had almost rather not go to school at all," say they ; and this really delightful exercise becomes a *bugbear* and

bête noir to many ; but taking up the lessons progressively, adopting something of the above form, using different subjects, and preparing the way for the pupil to be able to express simple ideas in an acceptable form, the "lion-in-the-way" will be removed.

Some years since I became an associate teacher in a seminary of some note ; soon after the commencement of the first year of my engagement the principal gave me the care of the composition writing ; for, said he, "I have become perfectly discouraged and weary with the effort to get either the young ladies or gentlemen to write at all ; they had rather do anything else ; and I can only get *any* writing done by the enforcing of a *very* stringent rule, and this only about once a term." I replied, I should try *my method* ; viz , teach them *how to write* ; and I had no doubt all would be willing to do so. He gave me the benefit of one of his most exasperating looks of entire incredulity, and bade me take any course I pleased. I commenced in the same manner I have done in this paper ; only, of course, there were none present who had not a fair knowledge of grammar, and many were at that time studying rhetoric ; but I made the exercise simple and attractive, and in a few weeks the subject was not a dreaded one ; on the contrary, all were ready and willing to prepare and bring in a well-written essay or composition fortnightly ; and monthly we had a very respectable paper, edited well, and well-filled with just such productions as all scholars should be *able* to produce ; and these same *haters* of composition-writing were the producers of this sheet. The secret lay in the fact, they had all been *taught now* how to do what was expected of them, and which they had hitherto not known.

LANGUAGE NUMBER LESSONS.

BY ANNA B. BADLAM.

I.

Few subjects, perhaps, can be made so attractive to little children as that of simple number. Watching children at their play, we find they are only men and women of a younger growth, delighting to imitate in every way what is going on around them. It is well if we can carry out this thought in our teaching of the little ones, and certainly with no subject is there wider scope for it than with number. Hence it can be, and should be, made a pleasure and pastime to them,—a game in which

they may be merchants, farmers, housekeepers, anything they may elect to be for the time being.

Keeping this thought in mind, with a variety of objects, collected with little trouble or expense (spools, stones, shells, balls, marbles, acorns, cones, boxes of ten-pins, counters in wood and card, artificial flowers, etc.), arranged conveniently on the table, watch the eager faces of the children as they gather about it ; the little eyes, bright with anticipation, fixed on the teacher's face, as she says to one of the class : " Harry, go to the sea-shore and find something to show me." Harry eagerly picks up a shell and carries to the teacher, while the questions are asked, " What has Harry found ?" " How many shells ?"

" We will all try to do as well as Harry. When you have each found one shell, place it in front of you on the table, and stand quietly waiting to hear what I shall tell you."

(Holding up the card with figure 1 on it.) This card tells how many shells Harry found. It shall tell you *how many* to get, and I will tell you *what kind* of object. We will each buy just as many spools of silk as the card tells us. Now let each pick as many flowers as the card says. Katie, find as many stones as the card says. John, buy as many balls. Lizzie, go into the woods, find as many acorns. Working in this way until both the idea and sign are fully understood.

If the lesson be upon 2, review 1 : " Harry, give your shell to Katie ; how many has she now ?" " How many have you ?" " Take as many shells as she has, Harry." " Children, add enough shells to the one you have, to make 2." " Blanche, give me 1 shell." " Children, take away 1 shell,— what is left ?" " Put them together again." " Take away half of the number of shells you have, how many must you take ?" " Which would you rather have, 1 shell or 2 ?" (To awaken the idea of more or less.)

The sign for 2 being shown, exercise on finding as many objects as the card indicates. In this way, sometimes one acting as store-keeper, the rest as customers ; sometimes as farmers, planting corn ; or brick-layers, building walls, the idea of numbers to 10, with the figures to represent them, may be pleasantly and profitably taught.

At as early a period as possible, children should be taught to recognize objects in groups, as a group of 3 or 4 (not above 5). A large circle may be drawn on the board, perhaps a foot in diameter, filled with groups of lines in various positions (straight, horizontal, diagonal, etc.), the different groups being in varied colors. The children will be delighted to tell you just how many in any group, as you point to one or another.

Going one step beyond this, holding up the cards, as 2 and 3 : " Children, take a group of 2 and a group of 3 objects." " How many

have we?" "Mamie seems to have found some cones; tell us about them." "Helen, tell us about your pennies." "Charlie, where did you get your marbles?" The children will readily take the thought, and be ready with their number stories, taking pride that all the conditions for a probable and interesting story are correct. It may take a little longer for this kind of work, but who shall say it is not intelligent, interesting, and therefore instructive?

PRACTICAL LESSONS IN NATURAL HISTORY.

BY MARY D. MCHENRY, PHILADELPHIA.

LESSON VIII.—THE ANIMAL KINGDOM.

Having introduced your pupils to the "Animal Kingdom," the year prepared to notice its Sub-Kingdoms, or Divisions. Call their attention to the spinal column, and to the fact that it and all their bones are inside, and covered with soft flesh.

Then mention the dog, cat, wren, sparrow, shad, toad, etc., asking if the same is true of each one. If you can have living specimens, it will be much more interesting; but in their absence, the memories of the children will be exercised, and usually they will answer correctly. Without leading them just yet into the intricacies of the other divisions, you can, with examples,—like the bee, fly, oyster,—and others, show that there are many creatures that have not backbones, and whose fleshy parts are within. At this point teach them that every animal that has a backbone, and whose soft (or fleshy) part is outside, is called a vertebrate animal. This may seem like a hard name for the little ones, but, understanding its meaning, they will be proud to be able to use it correctly.

If you can procure a spinal column, it will add to the interest and force of the lesson, or serve as the subject of a special object-lesson. Now write upon the board: "Vertebrate animals have backbones, and the fleshy parts outside," and have the pupils repeat it several times.

If old enough they can write out lists of Vertebrates on their slates; if too young for that, let them dictate while you print a list on the board. This they can copy,—teach them to read and spell these words; thus lessons in reading, spelling, and writing can be combined with Natural History. Surely there will be more pleasure and profit to the children in the exercise than in the old-time methods.

PHYSIOLOGY FOR PRIMARY CLASS.

BY MRS. LOUISA P. HOPKINS.

IV.

The class should be allowed to see a manikin during the study of the bones, and be led to observe all the bones and joints carefully.

Teacher. — We have learned what the frame-work of the body is, and how its different parts are joined together for our convenience. Do you think it like any other skeleton?

Teddy. — It is made something like a monkey's.

Prescott. — It is like animals a good deal.

Teacher. — So it is, but it stands upright, and has two arms instead of two fore-legs. Nevertheless, it is on the same plan as that of all four-footed animals; you can easily see the likeness and the difference. The long chain of bones in the back, the spine, is the same, and gives a name to all animals that have it; they, with man, are called the *vertebrates*, from the name of each little bone of the spine, *vertebra*. (Let the class name a variety of vertebrates.) Is this frame-work of bones inside or outside of us?

All. — Inside.

Teacher. — Are you not glad that it is clothed, and made beautiful with flesh and skin? What is the flesh?

Madge. — It is the part that has blood in it.

Prescott. — It is the part we eat in animals,—the meat.

Teddy. — It is the thick part around the bones.

Teacher. — You are *all* right. At recess I will take you over to the meat-market, and show you how it is wound about the bones and lies close to them, with a thin skin around it which twists into strong cords at the ends, and fastens the flesh tightly at the joints. What are the cords and the flesh for do you think?

Lottie. — To cover the bones.

Teacher. — Did you ever take a chicken-leg from the kitchen and pull the end of a tough white cord, showing just where the joint was cut?

Ethel. — I have, and it pulled up the claws and acted just like walking.

Teacher. — The cords at the ends of the muscles do the same thing; they move all your joints, pull the bones this way or that, as you wish. The muscle,—that is the flesh which is wrapped about the bones,—is shortened and brings up the cords to pull the bones; I cannot fully understand it, but when you wish your arm to come this way, your

muscle knows it and shortens to pull up the arm ; it is as if your mind up here in the brain sent a telegraphic despatch to the muscle to pull up the arm, and it did so. God understands it, who made it. There are little fine threads going from the spinal cord which joins the brain, and these threads are like the telegraphic wires ; they carry the message of the thought and will, and are called nerves.

Agnes. — I never heard of anything so nice as that !

Teacher. — You didn't know you had a thousand telegraphic wires in you ; but these little nerves go to every spot in your body ; if you prick any part with the finest needle, the message goes by the little fine nerve that reaches that spot, all the way to the spinal cord and to the brain to tell your thought where it is, and you can tell at once, without having seen, where it is. Suppose it were not so, how often we might be hurt without knowing how or where, and perhaps we might even be killed without a chance to prevent the fatal effect of some little wound.

Willie. — I felt something hurting my hand the other day, and looked and found a piece of a needle almost hid in the flesh by my thumb, and my father got some pincers and pulled it out.

Teacher. — These little nerves tell the *muscle* what to do, and then the muscle shortens or lengthens and does it. All draw your arm up and forward from the elbow ; shut your hand tight and feel of the muscle. Can you feel it ?

Madge. — Papa laughs at my muscle ; his is just as hard as iron when he does this, and bunches right out.

Prescott. — I can show my muscle ; it is hard, too.

Teacher. — See how firm your muscle is on the lower part of the leg, the calf of your leg. That is large and strong because you use it so much, jumping, running, skating, and walking. The muscles grow round and firm by using. They are all over you. Did you see the men at the circus, who leaped so well and performed on horseback ? Their muscles were all well developed, and looked as they ought to look, and made the whole body very handsome and graceful, and agile and strong. You must exercise all the muscles to make your body grow as it was meant to grow. There are great bands of flesh or muscle across the chest, and they ought to be strong and make the chest round, the body erect, and bring the shoulders back. Stand up as you think you ought to look. Now take a good, long breath. If your chest-muscles are strong you can breathe better, and you remember I told you about a strong muscle which separates the chest from the lower part of the body ; that is the diaphragm, — and when you breathe it swells out and draws in and moves up and down. Do you feel it ?

All. — I feel it.

Teacher. — When you use the muscles the blood rushes quicker into

the little veins, the blood-vessels, which are just like a fine net-work all over the body and through all the muscles. The blood keeps the muscles warm and alive, for it carries something to them to build them all the time, as they waste from using, and it carries back the wasted parts, which would decay and corrupt the body otherwise, and that is just what happens when a creature dies,—the flesh decays ; you all know this. We will go and see the flesh at recess, and I will show you how it lies about the bones and is tied to the joints, and you can think that it is very much the same as your flesh, which is so much of your body and does so much of your work.

HISTORY IN PRIMARY SCHOOLS.

BY JOHN J. ANDERSON, PH.D.

VI.

DE SOTO'S EXPEDITION (Con.)

Note.—A large wall map of North America should be hung up before the class, and De Soto's route carefully on it traced. An article at the close of Theodore Irving's *Conquest of Florida* gives the various marchings and distances of the route. A map, prepared by J. C. Brevoort, and inserted in Smith's *De Soto*, published by the Bradford Club, shows in bold lines the entire route. Either of these would be a great aid to the teacher.

The expedition, as it began its march, with De Soto at its head, made a most brilliant display. More than three hundred men rode on horses, all of whom were clad in rich armor and costly dresses of bright colors. De Soto thought he was fortunate when he was joined by a Spaniard who had been a member of the unfortunate Narvaez expedition, of which you were told in our last lesson, and who had been held a captive by the Indians ever since. But De Soto was very much disappointed in a very short time. The Spaniard, it is true, had learned the Indian language, and could consequently act as interpreter, but he knew nothing of any land of gold. He had never seen any, or even heard of any. Therefore he could not advise De Soto in which direction to proceed. At first the expedition went many hundred miles in a northerly direction, but everywhere the Indians were hostile. Those whom De Soto captured, or who pretended to be friendly, constantly deceived him by telling him of gold regions far away. They wanted him to leave their country, for his men eat their corn and beans, abused their wives and daughters, and made their young men carry heavy burdens.

The Spaniards passed their first winter in that part of our country which we call Georgia. Early in the spring of the next year they resumed their march, going further to the north, but at last being convinced that no regions of gold were to be found there, turned to the west and south. They waded across swamps and rivers, fought battles with the Indians, lost many of their number by fevers and the arrows of their foes; still they pressed on, — at one time going northward, at another to the west, and then to the south, just as they were allured by the deceptive stories of the cruelly-treated natives. Shortly after they had reached an Indian village not far from the great body of water we call Mobile Bay, they were attacked; and when, after defending themselves at least nine hours, killing more than two thousand of their bow-and-arrow assailants, and the battle was ended, they found their loss a terrible one. Eighty of the Spaniards had been killed, as well as about forty horses; and the houses in which their baggage, food, and medicine had been stored were heaps of smoking ashes. In addition to all these calamities, many of the Spaniards had been dreadfully wounded, and all, with few exceptions, were completely discouraged and wanted to get back to Spain. Just then an opportunity for escape seemed to be presented, for a report reached De Soto that some of his ships had sailed westward along the coast, and were at that time a short distance south of him. But, fearing that his men would desert him, he turned his face to the north, struck into the interior of the country, and resolved more than ever that he would not return to Spain till he had made his enterprise glorious by finding a land of gold.

The second winter was spent in the upper part of what is now the State of Mississippi; but the Spaniards were compelled to be on their guard day and night; the Indians there were just as hostile as the tribes they had previously met. One dark and cloudy night, when they supposed they were well protected, they were suddenly aroused from their sleep by yells and war-whoops. They rushed out to find their houses on fire and themselves surrounded by thousands of their foes. Before they were able to drive their assailants away, forty of their number were killed and their houses were reduced to ashes. Do you think that the Indians did not have plenty of cause for their bad feeling toward the Spaniards and for all the disaster they were inflicting upon them? De Soto, though he treated a few of them with kindness, because he wanted their help, was just as cruel to all the others as Narvaez had been. He was more cruel, if possible. He drove the Indians from their houses, hunted them down with fierce dogs called bloodhounds, made slaves of them, and killed, or, what was worse, cut off the hands of those who would not obey him. How could he expect that the people he treated in this terrible manner would be glad to see him? The only favors he received from them were such as their fears compelled them to grant.

As the winter passed and the spring came, the Spaniards resumed their march, and soon reached a great river (1541).

Can you tell what river was reached? Look on the map and see what river runs from the northern part of the United States not far from Lake Superior, and through an extensive valley, and finally flows into the Gulf of Mexico? What large city is near the mouth of the river? Mention other cities that are on the river, and point out their location.

Yes, the river was the Mississippi. The word is Indian, meaning the great and long river. De Soto, as we have thus far seen, and as we shall presently see, never found a land of gold, but he discovered a great river, the greatest in all North America, the longest in the world if we measure from the head-waters of the Missouri; and for that reason his name will live forever in the history of our country. The Spaniards wanted to cross it, but its waters rushed along very rapidly, carrying with them great trees. In the canoes of the Indians the men might have crossed, but these were not large enough nor strong enough for horses. Then they set to work to build large boats, and, after a month's labor, four barges, each big enough to hold three or four horses with as many men, were finished; and in these, by many crossings and recrossings, the entire party was conveyed to the western bank of the river.

PROGRESSIVE STEPS IN THE STUDY OF MUSIC.

BY W. S. TILDEN.

VI.

Probably most teachers of beginners in singing have been impressed with the inefficiency of the means at command for teaching time properly.

In dealing with pitch, by the use of sol-faing on the tonic principle, we have a system of mnemonics which enables the pupil to grasp the melodic idea with certainty. Is it possible to have a system of mnemonics by which a learner can be led to grasp the time with equal certainty?

It has been thought by many teachers, European as well as American, that having acquired the ability to decipher the relations of pitch in an exercise, an understanding of the time will come to the pupil in an incidental sort of way,—or that the exercises may be so graduated as to present the difficulties of time in such easy succession that they will be mastered almost unconsciously.

In practice, however, several objections to this view present themselves. In the first place, the song-exercises, if arranged for the purpose of educating the rhythmic sense in this manner, must be not only very numerous, but tame and common-place in their rhythmical structure ; or, if spirited rhythms are attempted, they must be learned wholly by rote, and so are considered by the pupil only as integral parts of certain tunes, adding nothing to his stock of general knowledge on the subject. In the second, and very important place, we miss that *exact apprehension* which comes from taking each element apart from others, and learning to conceive of it as a separate existence.

With many teachers the grand panacea, the all-healing salve, is "beating time,"—an exercise, without doubt, useful at a certain stage of progress. But before it can be used with profit, the pupil must have learned to perceive pulsation clearly, to maintain a steady rate of movement, and must be freed from struggle with other difficulties. Until then the hand only follows the erratic action of the mind, and the attempt is not only profitless but injurious.

Others recommend separating the time from the tune-element in an exercise : taking first all sounds at the same pitch, and with the syllable *la*, giving only their time-values. This plan is educationally correct as far as separating the elements for study is concerned ; but aside from the monotonous character of such studies, there is about as much difficulty for a beginner in grasping the time with the one syllable *la* as there would be in deciphering the pitch with the same syllable, discarding the *sol-fa*.

In adopting a system of mnemonics for time we must be careful to avoid all such complication as would hinder its usefulness, or require needless labor in acquiring it. The French have given us a system of wonderful simplicity and effectiveness. Most of the changes and additions that have been made by those who have adopted it in England and America have served to detract from, rather than to enhance, its usefulness, as it seems to us.

The simple rhythmic idea is the *pulse*, not the *measure*. Measures are complex : arising from different groupings of pulses by means of accents, and are of several kinds. The pulse is the *root idea* from which a practical time-language may be developed, which shall be as simple and direct as the tune-language of the *sol-fa* syllables.

PRINCIPLES OF THE FRENCH TIME-LANGUAGE.

A tone begun and ended in a single pulse (or beat) is named *TA* (pron. *tah*).

The consonant indicates a freshly-emitted tone.

A tone which occupies the time of one pulse, but which is continued over from a preceding tone is named *-A* (pron. *ah*).

A tone two pulses long is called TA -A ; three beats long, TA-A-A, etc. Two half pulses, with a freshly-emitted tone for each, are named TA TE (pron. *tah tay*).

Two half-pulses, in which the first is occupied by a tone continued over from a preceding tone, are named -A TE (pron. *ah tay*).

A pulse divided into thirds, with a freshly-emitted tone for each, is named TA TE TI (pron. *tah tay tee*).

Other more minute divisions have their appropriate names, which may be given when the simpler rhythms have been studied.

METHOD OF APPLICATION.

In talking to pupils about the time-language, or using its names in speech, it is indispensable that they be spoken according to their rhythmic sense. Thus, in saying TA-A, the -A occupies as much time in utterance as TA ; in saying TA TE, both together take no more time than TA alone. Carelessness on the part of the teacher in this respect will do much to prevent pupils from getting benefit from this study.

We cannot better illustrate the mode of using time-language than by applying it to the familiar school-tune of "Lightly row." We give the tune written in numerals: two figures placed under a vinculum stand for half-pulse tones, and we use the hyphen for continuation of tone after a figure, as we do after a time-name.

<i>Time Language.</i>	TA TE	TA	TA TE	TA	TA TE	TA TE	TA TE	TA
<i>Written Music.</i>	5 3	3	4 2	2	1 2	3 4	5 5	5
<i>Time Language.</i>	sol mi	mi	fa re	re	do re	mi fa	sol sol	sol
<i>Words.</i>	Lightly row,		Lightly row,		O'er the glassy	waves we go;		

TA TE	TA	TATE	TA	TATE	TATE	TA	-A	TA TE	TA TE	TATE	TA
5 3	3	4 2	2	1 3	5 5	3 -		2 2	2 2	2 3	. 4
sol mi	mi	fa re	re	do me	sol sol	mi		re re	re re	re mi	fa
Smoothly glide, Smoothly glide, On the silent tide;								Let the winds and waters be,			

TA TE	TA TE	TATE	TA	TATE	TA	TATE	TA	TATE	TATE	TA	-A
3 3	3 3	3 4	5	5 3	3	4 2	2	1 3	5 5	3 -	
mi mi	mi mi	mi fa	sol	sol mi	mi	fa re	re	do mi	sol sol	mi	
Mingled with our melody, Sing and float, Sing and float, In our little boat.											

There would be no difficulty in singing so familiar a tune as this at once, applying the time-names ; but they are intended to be sung to one pitch throughout. The rhythmic structure of the piece thus stands forth as an entity clearly before the mind, expressed in definite language ; a language as unmistakable as that used to express the changes of pitch.

It is proper to say the time-names are here employed in strict accordance with the method employed by M. Aimé Paris, the original inventor.

Fane.—"She was better than the man with the cane, because she couldn't get the woman up, and he could."

James.—"She might have spoken to her, if nothing more."

Daisy.—"Miss Mills, do you think the woman will be good when she gets well?"

Teacher.—"I hope so, my dear!"

"He's splendid!" is universally accorded to the boy reading Cæsar, supplemented with the ejaculation from ruby-cheek Jim, "Oh, Lewis 's a boss fellow!"

Miss Mills attempts no correction on the slang. This is not the time for that; it is not her way to do it *now*. Finally there is a lull of voices; then speaks James Hunt. James was no common boy,—a good scholar, with strong individuality, an original thinker. But Miss Mills knew he was not truthful, and that he was often at the root of an evil which he outwardly escaped. He was ambitious, and very anxious to secure the good opinion of others. Said James: "If our faces are clocks, I think we'd better be careful what time we keep. Men don't like a watch that says it's *two* when it's only twelve."

Had she then, inadvertently, touched the very spot she had for weeks been striving to reach? Miss Mills was silent; the lesson was doing its work, although, apparently, in a different direction from what she intended.

But little more was said. Miss Mills asked them to take particular notice until another Monday, of what they might themselves do, and also of anything they might see in others, like what had been read or related. She opened her Bible and read: "Blessed are the pure in heart, for they shall see God" "If any of you lack wisdom, let him ask of God, that giveth to all men liberally and upbraideth not; and it shall be given him."

There was a moment of perfect silence; the bell struck, and the school went about their daily lessons. Miss Mills often put to herself the question: "Are these Monday morning exercises really doing any good?" Gradually the answer came.

One Sabbath day, after a week of discouragements, a mother said to her: "You don't know, Miss Mills, what an influence you are having over my Tom. He used to be rude and boisterous and inconsiderate, and suddenly he has become as thoughtful and self-sacrificing as a man. The other morning our Margaret had the rheumatism so she could hardly move her head. I went into the kitchen, and there stood Tom, with a bottle of liniment in his hand, actually rubbing her arm and shoulder. Why, two months ago, he would have given her gray hair a pull, and rushed out of the house with the speed of an antelope."

Miss Mills plainly saw that the mother regarded these two conditions

of her boy with equal favor. "Tom must have my help all the more," she said to herself.

That evening Mr. Loomis remarked, on the way to church, "You are making a saint of our little Eva, Miss Mills. She used to be a very selfish child, but she is now constantly on the look-out for an opportunity to do something for others. At first I ascribed it to a mother's influence, you know," with a nod toward his wife, who was walking by his side. "But a conversation with one of her school-mates, which I happened to hear, revealed to me something of what you are doing for our children."

After this similar testimonials came to Miss Mills,—sometimes from cultured homes, but oftener from those where courtesy is ignored or unknown. The school itself seemed the same from day to day, yet, when she looked back to the first few months of her connection with it, she felt there was a radical change in the bearing of the pupils, both toward herself and each other.

Years have passed. Among the pleasant things scattered in along this teacher's varied experiences, none have brought her a more gratifying surprise than the following letter :

CHICAGO, *April 17, 1880.*

To my ever-remembered Teacher :

Long have I wanted to write you. I am now a prosperous businessman, and, I hope, a Christian. My success in business I attribute to your influence and instruction, and from the same source, through the grace of God, has my Christian principle and character been formed and established.

You will remember J—— H——. I was vain, selfish, ambitious, sedulous in winning the applause of others. These traits made a smooth surface, but, oh, the corruption within! When none heard, whose approval I came to gain, I was profane; when none saw, I gratified a rapidly-increasing appetite for drink. I deceived to carry out my purposes; would lie unscrupulously, if sure of not being detected.

You may not remember relating the story of the poor old woman, whose sinful life was stamped on her face, and the quotation from Emerson about our faces being clocks. That was Monday morning. The next Monday morning I was another boy. I had resolved the thing in my mind, and determined my clock-face should tell the true time,—to be as well as to seem. My ambition to be thought well of was then the chief incentive. But gradually this yielded to the desire for that higher life, which your example made so attractive, and of which an impressive word, occasionally uttered, revealed the true source.

I need not tell you the rest; you will realize the struggle when the wicked soul strives to throw off its shackles. Step by step the work, I trust, is being accomplished. I know,—no scholar of yours could fail to know,—the deep interest you felt in the welfare of your pupils; nor could I rest until I had assured you of the ever-grateful memories of the boy your example and words and prayers have saved.

J. H.

HINTS ON BLACKBOARD DRAWING.

BY W. N. HULL, CEDAR FALLS, IOWA.

Remember, we are working on a black surface. If we examine any picture upon a white surface, it is seen that the white or high lights are, as a rule, on the points nearest to the observer,—always in points, never in masses. To produce similar effects upon the blackboard, we must whiten that part of the picture which, in the object, comes nearest to us, leave the most distant parts black, and, with dry fingers, blend the white into the black, producing an intertint of gray. Some teachers reverse this work upon the blackboard, using white to shade the parts most distant, and blending up into black which is nearest. This is evidently wrong. We cannot shade with white. We must leave the shade on the distant parts, and put the white light with white on the points nearest. If we draw a circle, and wish with it to represent a sphere, we must brighten the middle part and blend toward the circumference. This illustration covers the point.

Very pretty effects can be produced by drawing a frame, say two feet, circle, oval, rectangle, or a rectangular bottom and rounded upper corners; then whiten the blackboard within the line of the frame, blending with dry fingers, and going over it again and again with crayon turned flatwise, still blending, until the surface is a smooth white. Upon this white surface draw the picture in black conte-crayon, or the common blackboard colors. Curtain-sticks make excellent blackboard rulers. Make the frame true, and the white edges sharp.

In landscapes, make the frame first. Use ultramarine blue at the top, pressing on with the crayon flatwise, joining the upper white line, lighter below, blending into red, orange, or some other bright color, down to the horizon, half-way, perhaps. Lay on clouds of white. Build a line of mountains with conte-crayon against or upon the sky, showing the horizon in spots, and again running the tops up into the blue. Make the mountains black, blending in purple, white, or brown. Make those most distant with softer, lighter strokes and lighter blending. Perspective may be shown by *strength* of lines as well as by *direction* of lines. The most distant parts of the landscape are softer, more hazy, while the strength of strokes and colors increases as the work approaches the foreground. The ultramarine for sea and ocean, working white into that part coming nearest. Make the water level. Put in *sail-boat* of white. Finish the foreground or bottom of the picture in stronger colors, brown, green, etc., and with heavier strokes.

DISCIPLINE: ITS PRINCIPLES AND METHODS.

BY MISS L. D. PHILLIPS.

II.

The teacher should make just rules, deserving of respect, that his scholars may learn to honor law; few rules, and enforce them. Not say that he will enforce them; that if they are disobeyed, punishment will follow, etc. Let him take it for granted that his wishes will be respected. If they are not, let the offenders soon see.

Pestalozzian principle: "Never tell a child what he can discover for himself." Those who threaten a great deal, do not always carry out their threats, and the children are willing to risk their chance. If the teacher deems it wise to affix the penalty, let him take time to consider whether he can and would wish to carry it out under all circumstances. Take no position which he cannot maintain.

Obedience is one of the child's most important lessons. The habit fits him to obey the laws of his country, and insures for him future happiness and success in life. Punishment, heavy or light, as the case may be, should follow a violation of school laws, that the child may expect to suffer for the violation of all laws, civil, physical, and moral.

Secure obedience in a quiet, mysterious manner. Not those who make the most noise, govern the most. A quiet teacher, a quiet school. If a command is always given in a mild tone of voice, the scholar will not wait for anything violent before he obeys.

Teachers will often need to exercise great self control, but in no better way can they cultivate that most desirable trait of character in their pupils. Self-control inspires confidence and respect; without it one cannot expect to govern others. Require prompt obedience, and in all the exercises of the school there should be a special reference to promptness, that the children may form habits which will be of advantage through life.

Avoid making rules that shall suggest mischief that might never have occurred. Do not let the children feel that you expect naughtiness from them.

The principal of a training-school, on making her usual round of inspection, discovered one of the habitually bad boys standing on the platform. Wondering what new piece of mischief his brain had devised and his fingers worked out, she gravely approached the little sinner:

"Johnny, what are you here for, now?" "Nothin'."

(More gravely), "What are you standing here for?" "Nothin'."

"Who put you here?!" "She!" (with a wag of the head toward a young teacher.)

Now, Johnny, tell me why she put you here if you were not naughty."
 "Cos she was afraid I *would be!*"

The teacher can be a little blind, occasionally. Sometimes it would be better not to see some little naughty things that an awful naughty boy does. I believe in keeping the eyes in the back of the head closed. If the scholars feel that they are watched, they will keep up a little game with the teacher.

Show a sympathy for the pupils. We must not measure them by a man's standard. They are young, and need our compassion and care. Some are slow, and need encouragement, which calls for patience, that great quality so necessary to fit one for the position of teacher.

As well as teaching obedience to those in authority, the teacher ought also to cultivate the conscience, which shall enable him to observe his own character.

Teach him duty. Establish correct principles of action, that he may discern the right. Incidents will often occur for illustrations, when the pupils may be called upon to decide which is right and which is wrong. Give him a high moral aim. In order to do this, consider the move as everything. A teacher may stimulate the child to a performance of right actions by the offer of prizes; but he should also appeal to some higher motive than the mere attainment of a reward. The teacher may know of some desire which is a stronger motive-power than any other, and may accomplish everything through it; but every time he obtains a right action through its means, the desire increases, and the right motive being inactive, weakens.

Children, those of higher grades in particular, think certain acts done in school are not wrong. Strive to cultivate a school conscience.

Some think that children should be shielded from all temptations. While we should not put stumbling-blocks in their way, we would not remove every-day temptations, because a manful resistance will give strength to face those that must come later.

— Beauty is but vain and doubtful good,
 A shining gloss that fadeth suddenly,
 A flower that dies when first it 'gins to bud,
 A brittle glass that's broken presently;
 A doubtful good, a gloss, a glass, a flower,
 Lost, faded, broken, dead within an hour.

— *Shakespeare.*

HARRY'S TRIAL.

BY MISS SMALLWOOD.

The last bell had rung. The noisy little group began rapidly to separate, each pupil making haste to his own seat, for play was over and the session had begun. A few moments served to restore order, and quiet reigned throughout the little school-room.

Devotional exercises over, Miss Allen stepped forward on the platform to view her class. Yesterday had been promotion-day, and as most of the time had been occupied in establishing order and planning the system for the term, this was, practically speaking, the first day of school. With a teacher's quick insight into children's character, Miss Allen determined the many different dispositions with which she was to contend ; observing intelligence in some countenances, while stupidity looked from the faces of others ; but generally speaking, resolution to begin the new year by doing as nearly right as possible seemed the prevailing disposition of the little class.

A little way down the aisle, directly in front of the platform, sat one whose impassive expression of face puzzled even her who had for so many years been brought into immediate contact with every description of child's-nature. Now that she stood regarding her class, before bidding them to their studies, the boy's eyes were raised full to her face ; later, when she had assigned to them their lessons, his eyes were bent studiously upon his book ; but with all this seeming attention to his duty, there was a something about him which the teacher could not understand ; a something savoring of insincerity which troubled her exceedingly. Directly opposite this boy sat another, who was, as far as appearances indicated, as totally the reverse of his neighbor as can well be imagined. A round, dimpled face, full of candor and beaming with expression looked up into the teacher's face ; dark eyes, sparkling with mischief but truthful withal, caught hers whenever she glanced towards their owner, and from the first, little Harry Linton became interesting to his teacher.

The days glided rapidly by, everything working favorably, deportment especially being quite up to the standard.

One afternoon, however, the sound of a suppressed laugh falling on her ear from that portion of the room in which her favorite was established, Miss Allen glanced up quickly only to discover Harry's little round face crimson with mortification at having been found thus disorderly ; a half-deprecating glance towards Eddie Holbrook, his neighbor, however, showed that he was not alone the culprit, though the

teacher was powerless to draw any conclusion from that source, as the boy's face was, as usual, non-committal and attentively fixed upon his book ; so bending on Harry one of those severely-reproving glances so much more potent with children than words, she returned to her work, and Harry gave no further indication of disobedience. But at the close of the afternoon session, as the little band filed out, each passing up to the desk on his way for his reward-of-merit, Miss Allen shook her head gravely, as she observed Harry's little hand half doubtfully extended. With a sad, disappointed look the child turned away ; and as she prepared to go home that evening, Miss Allen resolved that a repetition of what had occurred that day should meet with a thorough investigation.

The days that followed were happy ones, Harry's behavior on all occasions being most exemplary. It was arranged, partly as an interesting feature in the school routine, partly as an incentive for the continued interest of the pupils in their school duties, that the Friday of each week should be a gala-day in the class. The children were some of them to learn pieces to recite, songs were to be sung, physical exercises gone through ; and all was to be witnessed by as many of the parents and friends of the children as could make it convenient to come ; and more than all, Mr. Willard, the master of the school, was to be present.

The first of these all-important occasions at length arrived. Harry Linton was in a state of nervous expectation. The lad committed to memory several verses of a piece which he was to write, and with trembling anxiety he was awaiting his turn. The dreaded moment at last came. Harry's name was pronounced, and crushing down his fear, he arose from his seat.

More than one smile followed the sturdy little figure as it marched toward the platform. With a voice which trembled slightly at first, but which strengthened as he went on, Harry delivered his piece. A murmur of approbation at his effort, falling on his ear as he finished, sent a bright flush to his cheek ; and as he sought his seat, the smile of approval which his mother bestowed upon him seemed the dearest praise of all. Thus the afternoon passed. The exercises came to an end, and the visitors departed.

As Harry, with his companions, was passing out of the room at the close of the session, Mr. Willard, who had not yet gone, called him to the desk.

"What is your name, my boy?" asked the master kindly, as the child approached.

"Harry Linton, sir," half tremblingly. "You did your part well this afternoon, Harry," continued Mr. Willard, smiling ; "your teacher

should be proud of you. If you come up to my room some day next week, I will give you a pretty book."

How proudly Harry told the story of his little triumph to his mother that evening! and how happy the little heart beat that night as the child went to rest! Happier far, alas! than he was destined to be for some little time again; for a trial was awaiting the boy's experience.

The next week began as usual. Monday dawning bright and beautiful. During the afternoon of that day, however, Miss Allen was startled to hear once more the same smothered laugh which had so grieved her on one other occasion. Glancing up quickly, she beheld Harry's face, crimson as usual when he was found disobedient, but this time attentively fixed on his book.

For a moment the teacher stood irresolute as if meditating on what it was best to do; then she called Harry to her. The boy arose obediently and advanced to her side. Placing her hand upon his head, and gazing down into the dark eyes which refused to meet hers, the teacher began questioning.

"Harry," said she, gently, "what were you laughing at?"

No reply.

"Harry," this time with more firmness, but gently still, "what were you laughing at? Answer me."

Still Harry ventured no reply. The tears came into his eyes and trickled down his rosy cheeks, but he did not speak. Miss Allen looked sadly into the tearful little face, and began again:

"Did any body make you laugh, Harry? Tell me, dear. You shall not be the sufferer, unless you are the guilty one; wont you answer me?"

Still the tears came, but still the boy was silent.

"Are you afraid of being punished?" continued the teacher.

"No'em!" a flash of pride stealing into the bright eyes, in spite of the tears.

"Then, Harry, why don't you tell me about it? Unless you do as I bid, I must send you to Mr. Willard."

Poor Harry! in his heart he was innocent; the sly pranks of his neighbor had been more than his own lively sense of fun could withstand, and in an unfortunate moment he gave vent to the audible laugh which had so grieved and surprised the teacher.

Strange it was that Eddie Holbrook, however guilty, was never found openly disobedient; stranger still, he never attempted by acknowledgment of his own fault to shield another, and Harry's brave little heart refused to turn informer, however unworthy the cause he defended.

At mention of the master's name his heart sank. He could not bear to meet that severe look and hear the tone of reproof he knew must be the consequence.

Half reading his thoughts, Miss Allen once more and very gently

repeated her question, but alas! Harry still refused to answer her.

"Then, Harry," with quiet decision, "you must go to Mr. Willard."

Rising, Miss Allen stepped upon the platform, and opening the door, motioned the child from the room.

Sobbing and with bowed head, Harry passed out, and the teacher closed the door. Once outside the child's grief gave way, and he broke into a passion of sobs. Seating himself on the stairs, he tried to think. How could he go before the master with such a report! It was too much, and yet what could he do? The sobs ceased, and Harry became calm.

What thought was that which for a moment caused his eyes to brighten, then to drop while his cheek flushed with shame? An idea, but, ah, a wicked one, had taken possession of his mind. He thought that he would go as he was bidden to Mr. Willard; would rap for admittance, and being met by the master, would assert that he had come for the promised book. Half hesitating, he arose and toiled nearly up the stairs. With every step his dread at meeting the master's displeasure increased, and the determination to deceive strengthened within him.

"He told me to come for the book, any way," he murmured apologetically to his accusing conscience; "and it will not be so very wicked, for teacher didn't tell me to say what I was sent for." The last flight was gained, and with trembling steps Harry approached and rapped at the door.

Mr. Willard opened it, and observing the little face which had so interested him the Friday before, smiled pleasantly, saying:

"Well, my boy, what can I do for you?"

"I—I came up for the book, sir," was the reply in a trembling tone.

The master looked curiously at the little figure before him; then attributing the child's embarrassment to his unusual errand, kindly asked him to step in while he got the book. Harry did as he was bid, all the while feeling in his guilty little soul a very culprit.

How all the large boys stared at him! and how thankful he felt when Mr. Willard finally approached with the book, and dismissed him with a kindly word.

With an aching heart Harry once more sought the school-room, leaving the book in the dressing-room. The afternoon session had drawn to a close; and he reached his seat in time to be dismissed with the others.

"I must learn the whole," thought Miss Allen, as the little line passed out. "If he confessed to Mr. Willard, which of course he must have done, he will undoubtedly do the same by me." But the wretched little face, as it passed by with the others, appealed to her sensitive nature. "Not to-night," she concluded. "He has suffered enough already. To-morrow, when his heart is less sore, I will question him

again." To-morrow came, and brought with it, after a night of suffering, the wretched little face again.

With a troubled sigh Miss Allen watched the little figure with its head buried on the desk. Recess came, and Harry passed out with the others ; but on his return he was the same sad boy he had been before. His lessons went smoothly enough, but the bright eyes never once sought the teacher's face. The morning dragged wearily by ; and when at noon Harry arose with his companions, Miss Allen motioned him to resume his seat.

The child did as he was bid, and soon alone with her, he was summoned to the teacher's side. Drawing him toward her with motherly tenderness, Miss Allen began gently repeating her questions of yesterday. The dim eyes and quivering lips told their own story of suffering, and a moment later a passion of sobs shook the little frame. Passing her hand caressingly over the child's head, Miss Allen allowed his grief to subside before resuming her task.

"Oh! how can I tell! But I am so sorry!" began the boy at length ; and, amid tears and sobs, Harry told what he had done.

A look of wounded surprise crossed the teacher's face. Was this her little Harry, in whose honor she had so trusted, and on whose integrity she had so relied? How proudly she had watched the development of those qualities in her favorite, and how bitter seemed this revelation! But a sense of justice stealing over her, she crowded down her wounded feelings.

"Harry," she began again gently, "Harry, I will forgive all if you will tell me why you laughed yesterday."

The look of grief on his teacher's face, the first which deed of his had ever brought there, was too much for the child, and he told how many times during the day Eddie Holbrook would fasten one end of a string to his desk, and holding the other end firmly with his hand, would snap it with his fingers. "It always made me laugh," sobbed Harry ; "I couldn't help it."

Severely but very gently the teacher reproved the deception which her little favorite had practiced, and receiving his heartfelt promise in future to shun even the appearance of wrong-doing, she dismissed him with a warm kiss of forgiveness.

The next day the whole school was surprised to see a seat established in the corner of the room nearest the teacher's desk, where during the course of the forenoon Eddie Holbrook was removed. Harry alone, of all the pupils, knew the meaning of the change, and in his manly little heart resolved to spare his little neighbor's feelings by making an attempt to advertise his knowledge of the affair. Thus from that time Miss Allen had no further cause for censure. Harry's trial, though it had caused so much suffering, was for the best after all.

OUR NOTE-BOOK.

WITH THE SPRING.

The autumn woods are gold and brown,
 The autumn winds are chill,
 And the purple flush of summer
 Has faded from the hill.
 O autumn leaves, fall thick and fast;
 O autumn winds, blow free,
 And speed the bitter months along
 That keep my love from me.

The trees are bleak and bare; the lake
 With crispy frost is curled,
 And the white sleep of the winter
 Has fallen on the world.
 O wintry sun in wintry sky,
 Sink swiftly in the sea,
 And haste to drown the gloomy days
 That hide my love from me.

The asphodel and violet
 Are peeping through the plain,
 And the flame of golden crocus
 Has lit the land again.
 O bud and blossom, quicken fast,
 Bedeck the barren tree,
 And bring the spring, for with the spring
 My love comes back to me.

—*London World.*

One of the most useful exercises for the upper classes of the primary schools is that of *sentence-making*, and the following exercises, prepared by R. H. Fletcher, of Cambridge, Mass., will serve a good purpose in suggesting to teachers how to make sentences in their classes that will be varied and useful. Make them according to the following directions:

Let the sentences contain these words: Boy, girl, beau, fox, pupil, woman, child, thief, hero, lady, monkey, son-in-law, commander-in-chief, Dr. Brown, Mr. Fay, ox, eagle, city, I, he, she, who, thou, mouse, maid-servant.

Let the sentences contain these words: Mary, sky, this, that, lily, spoonful, alley, ally, tooth, piano, chimney, berry, wharf, gulf, church, sheep, army, German, synopsis, court-martial, ox-cart, forget-me-not, tomato, turkey, motto.

Let the sentences contain these words: Aunt, sister, daughter, bride, madam, queen, lioness, mistress, niece, lass, widow, belle, goose, duck, mother, heiress, administratrix; her, female, cow, woman-servant, landlady, wife, heroine, nun.

Let the sentences contain these words: Englishman, school-boy, emperor, editor, man-servant, Charles, lad, Jew, czar, hart, count, king, bridegroom, Mr. Brown, widower, horse, he-goat, papa, heir-at-law, male, Francis, marquis, prince, son, gander.

Let the sentences contain these adjectives: Good, little, modest, gentle, able, polite, gay, ill, old, pleasant, bright-eyed, feeble, hot, amiable, good-natured, much, well, fore, useful, wise, green, remote, skillful, lovely, happy.

Let the sentences contain these verbs : Be, go, lay, lie, set, sit, see, sow, sew, stay, fly, fall, shoot, awake, run, take, bring, seek, work (irreg.), choose, beseech, bid, speak, swim, eat.

Let the sentences contain these verbs : Write, teach, bite, strike, recite, say, hear, catch, sing, melt, mow, applaud, discover, forgive, assist, find, navigate, toss, sell, break, make, buy, forget, misspell, beat.

Let the sentences contain *nouns* derived from these : Educate, moral, tranquil, manage, safe, wise, acquit, critic, bake, mission, history, auction, novel, busy, school, goose, man, propose, lemon, lamb, stream, duck, maintain, prevent.

Let the sentences contain *verbs* derived from these : Famine, sweet, simple, critic, origin, strength, brand, tyrant, pure, pay, body, write, tell, trap, spell, obey, close, see, do, navigate, ordain, loose, throne, form, take.

Let the sentences contain *adjectives* derived from these : Man, critic, euphony, beauty, self, hope, honor, active, wit, nature, south, wood, cure, affection, angel, boy, abuse, please, suburb, quarrel, legal, sick, health, polite.

Let the sentences contain the plural number of these : Brother (by birth), brother (of a society), die (for coining), die (for play), genius (man of talents), genius (a spirit), penny (a coin), penny (collectively), staff (a stick), staff (a military term), index (a table of contents), index (algebraic sign).

Make use of these words also for a spelling exercise.

THE PRAYERS OF THE CHILDREN.

BY MRS. LOUISA P. HOPKINS.

The air is stirred

By light wings swaying,
And the sweet, pure words
Of the children praying ;
Till the angels hush
Their pinions' flutter,
And my heart beats low
At the prayer they utter.

"O dearie God !"
Prays darling sister,
With a pause of peace
While the seraphs kissed her ;
"Send daisy buds
In millions blowing
On the meadow-banks
By the river's flowing."

"Send thousands, thousands
Of buttercups shining,
And miles and miles
Of May-flowers twining.
Such lovely wreaths
Of buds and daisies,
Dear, sweetie God,
I will weave for praises."

In the sunset's glow
I could see the shimmer
Of radiant hosts,
Till my eyes grew dimmer ;
And I listened still,
Though the little maiden
Was smiling now
In her sleep, dream-laden.

Then while still deeper

The dark descended,
More earnestly
Were the voices blended ;
Soft palms were crossed
With a gesture holy,
And the angels bowed
With a trust more lowly.

"I want a spirit,"
Prays thoughtful brother,
"That will do no wrong ;
Is there not some other
More true than mine
Thou canst give, dear Saviour,
With a better heart
And a right behavior."

How close the thronging
Of white wings waving !
Pure childlike longing,
The faith most saving,—
Availing prayers
To heaven they carry,
For the Lord is coming
And will not tarry.

So a blessing falls
With the falling shadows ;
Hearts purified
And the blooming meadows
Fair Summer's promise,
Glad hopes of heaven,
Earth glorified,
And souls forgiven.

The agitation and discussion which has been felt and carried on for the past two or three years in regard to *oral* instruction in the primary schools, has brought the question of methods of instruction prominently to the attention of superintendents, supervisors, and school committees, and a careful examination of recent school reports shows that the subject is awakening much interest among those whose duty it is to prepare courses of study for the elementary schools, and has led many intelligent school-committeemen to make valuable suggestions. We quote from the General Report of the School Board of the City of Newton, Mass., the following sensible remarks; they are from the pen of Rev. Amos E. Lawrence, chairman of the Board. Speaking of oral instruction he says:

"What is its place in the common school? and to what extent shall we require it of our teachers? Shall the text-book be used? and how far? It may be said that a question of this character should be left to the decision of experts. But unfortunately the testimony of educators is divided on the question, and, where the testimony is discordant, it is at least safe to conclude that the extreme of *no* books is as bad as that of books only. All concede that the living voice is a most effective way of imparting instruction. But the child is to be *educated* as well as instructed, and the first is not less important than the last. One attainment that every pupil should make is to read understandingly,—so to read as to grasp and retain the thought of the sentences before him. Clearly the text-book is an important agent in this work. The problem in arithmetic, the paragraph or definition in geography, must be so read by the child that he can state their meaning clearly in his own language. He is to be taught to *study* as well as hear, to begin, in a small way, to use reason and analysis in *self-culture*, and must not be allowed to sit before his teacher as a mere absorbent. In the model system of Germany the lecture comes in the *university*, not in the primary school, nor yet in the gymnasium,—comes after the powers have been disciplined by study, and the pupil has been trained to appropriate what he hears.

"And in another direction: while we know that the text-book may be abused, to bring a school into ruts,—to foster a mere parrot-like repetition of words and phrases,—it is yet undeniable that it has its uses in cultivating the memory, and fixing in the mind such carefully-worded definitions and formulas as all find to be of the greatest use in practical life.

"These considerations are not intended to underrate oral instruction in our schools: they are designed only as a check to what seems to be the tendency of the times to a questionable extreme. In deprecating the old abuse of the text-book we are in some danger of swinging to the opposite pole, and of making our teachers mere talking-machines, and our pupils empty buckets to be filled. Shall we not be safest midway between the two?

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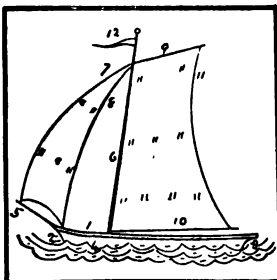
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THE PRIMARY TEACHER,

A Monthly Magazine,

DEVOTED TO THE

Interests of Primary Instruction in America.

WM. E. SHELDON, EDITOR.

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THE PRIMARY TEACHER.

VOL. IV.

APRIL, 1881.

NO. 8.

DISCIPLINE: ITS PRINCIPLES AND METHODS.

BY MISS L. D. PHILLIPS.

III.

Cultivate honor among pupils by trusting them. The naughtiest child knows of something he would scorn to do. Then rouse all the nobleness there is in them, and by trusting them they will become more worthy to be trusted. Let those who will, govern themselves; give them all the liberty they can rightfully use. Of course every school has certain regulations peculiar to itself, with which its members must become acquainted; but in time let them do just what they know is right. When this time arrives, the relief experienced by the teacher must be felt, not described. The school seems like a home; there is a freedom of thought and movement; they leave the room, or get anything in the room, without permission. If the scholar abuses his privileges (and the teacher will know), take them away. One afternoon one of my little girls made constant pilgrimages to the waste-paper basket. The happiness that sparkled in her black eyes and deepened the dimples in her chubby face, recalled vividly to my mind the days when a journey across the long high-schoolroom to the encyclopædia furnished both exercise and pleasing recreation to us older children. The big basket quietly placed by her little desk showed her the needlessness of her journeys, and gave the others an opportunity for a laugh that brightened the remainder of the session.

Teach self-reliance. What we do for a pupil is not of so much importance as what he is led to do for himself. In the management of the school we may teach self-reliance. Let each scholar know what he is to do, and when he is to do it. The pupils may know when each exercise occurs: that the B class follows the A class; that the physical exercises follow the class in numbers. Each pupil can just as well make it his business to take his place at the proper time as to wait for a signal from the teacher, aided, perhaps, by a hint and a whisper from

his neighbor, to recall his wandering wits. Self-reliance is thus cultivated, and time is saved.

"If there is one law above the rest written in wisdom ; if there is a mood that I would trace as with a pen of fire upon the unsunned temper of a child ; if there is anything that keeps the mind open to angel visits, and repels the ministry of ill, 'tis human love." Ask the assistance of the pupils ; it will awaken love for the teacher, which will help in controlling the school. "He that has once done you a kindness will be more ready to do you another than he whom yourself have obliged." Children love to bring what powers they have into action ; they are delighted if they think they are very useful. The older scholars are benefitted by assisting the little ones, and are proud to set an example to those submitted to their care. If they are good only when honored, we must remember that every habit is strengthened by exercise.

Encouragement will produce love for the teacher, and is of great aid in promoting moral improvement. We all need encouragement, and children more. A friendly feeling between teacher and pupil will help so much in the discipline ! Let there be no barrier between them. Why not let the child open his mouth to speak without first flourishing his hand in your face ? Some children, even on the street, dare not speak to a teacher before they lift their hand appealingly. A respectful deportment always, but no stiff manner.

Let the teacher take an interest in their pursuits, and in the qualities and powers which they value in one another. Watch with pleasure the amusements of the boys and girls. We observe in their play peculiarities which, during the hours of instruction, they do not exhibit. Many incidents will furnish opportunities for valuable lessons. Each child must learn to control his temper, and that others have rights, and that his will must be sacrificed to the majority. Teach the children to do to others as they would have others do to them.

As much as possible weave into their school-work what is interesting and agreeable. For very little ones, provide some games to use when their work is done. Make the school attractive ; let the day be so spent that the close of school shall not seem a release from prison. Children always wish to save the best until the last ; then leave the most interesting exercises until the last. Send them away smiling, in love with their school, the teacher, and themselves.

• We should aim to cultivate all those habits which will be for the welfare of the individual and the community. The cultivation of all good qualities is founded upon character in the teacher. If we would cultivate courteousness, we must exemplify it in our intercourse with them ; if justice, we must be just in our dealings, for children are quick

to perceive injustice ; if truthfulness, we must avoid every appearance of deceit. Opportunities for training in honesty will often occur. Children thoughtlessly tell untruths. Listen to them, as they gather in the morning. "Got your lesson?" Whoever heard of a scholar saying, "Yes"? They seem to think that the truth should not be told when it reflects credit upon themselves. If a child knows a lesson, he *knows* that he knows it, and why not tell the truth? This and similar incidents may be seized upon to give strict ideas of truth. Let the teacher be careful not to unintentionally tell an untruth, even if a good end is gained. Children will see through all shams ; they will wonder if the teacher really means what he says. If those principles by which they are influenced to do right are false, and they do accept them and are molded by them, there may come a time when by seeing the hollow where they thought there was a solid, they will not only reject the false, but lose faith in everything accepted as moral truth, and drift into a sea of doubt.

PRIMARY CLASS IN PHYSICS.

BY MRS. LOUISA P. HOPKINS.

II.

Teacher.—Here is the ash-cart, children ; there are three barrels full of ashes. They will be heavy for the man to lift.

Prescott.—I know how he will get them up. He will take the back-board out, and lean it up against the cart and roll the barrel up.

Teddy.—Then all the ashes will fall out.

Prescott.—Well, if they were flour-barrels he could roll them up.

Teacher.—Suppose they were flour-barrels, why would he roll them up.

Willie.—It isn't so hard to lift them.

Teacher.—The board partly supports them ; it is a machine ; it makes it easier to overcome gravitation, and adds to the force of the man. That board, or anything which gives a slanting surface on which a weight is raised, is an *inclined plane*. The meaning of the name is clear. Did you ever see a man chop wood, and then put a wedge like this (\triangleright) in the split, and drive it in to complete the separation of the wood?

Madge.—Is that a machine?

Teacher.—What is each long side of it?

Ethel.—An inclined plane.

Teacher.—The wedge is a machine, then,—a double, inclined plane. Will it split the wood across, as you might saw it?

Helen.—You have to drive it in with the grain.

Teacher.—Just as the axe goes in. Now what is the axe?

Frank.—That is a machine.

Teacher.—Is there any inclined plane about it?

Teddy.—It is just like a wedge.

Teacher.—That is true ; it is a wedge with a handle for the man to use in applying the force of his muscle to drive the wedge in. What is the wedge used for besides splitting? You cannot tell. Did you ever see men raising a building or a ship?

Maggie.—I saw them launch a ship, and they hammered in under it to lift it. Were they driving wedges?

Teacher.—Yes ; they drive great wedges in under the keel ; if they drive a small one at first, then they can drive in a larger one afterwards, and so raise the ship quite off the ways to launch it into the water. Sometimes to press things very tightly wedges are used,—to squeeze seeds together or fruit, to get the oil or juice. Wedges are used in many ways. I want to make a hole in this wood ; I cannot press a blunt end through it immediately, so I take a wedge which has an inclined plane all around it,—this pin, or a nail, or an awl,—and push it in ; the resistance of the wood is overcome gradually.

Gertrude.—I never knew that a pin is a machine.

Teacher.—What is a knife? Are not all sharp, cutting instruments wedges? Scissors are two wedges pivoted together. See, they work on both sides of what is cut, and meet in the middle. But what is it that keeps the wedge where it is driven? it might slip back, by the pressure on the inclined plane.

Teddy.—It gets pinched in.

Teacher.—It is friction which holds it ; the roughness of the wedge and the substance which it rests in act upon each other to hold it still, until some stronger force of driving is used again. If you use force to put a thing in motion, when does it stop?

Madge.—When anything stops it.

Teacher.—What stops a ball after it is thrown?

Teddy.—It falls down.

Teacher.—The earth stops it by gravitation, but it stops it gradually, because the force which started the ball yields gradually to the force of gravitation, and *something else*. If you should start a ball rolling on a plane, why does it stop? Will it stop sooner on a rough surface than on a smooth one?

All.—Oh, yes.

Maggie.—It is the rubbing on the surface it rolls on which stops it.

Teacher.—That is *friction*. There is less friction the smoother the surfaces, but there is some friction however smooth the surfaces; and all the friction is not in those surfaces, but a part of it in the air; that is what stops a thing moving through the air; even if it were not for gravitation, the friction of passing through the air would stop it. So you see friction stops a moving thing, and holds it in its place with much power. If you rub things together very quickly, the friction makes heat and even fire. This was the way in which people used to make a blaze. If a body moves very swiftly through the air, it will at last take fire.

Teddy.—Rockets will.

Teacher.—Rockets are set on fire before they begin to move; but meteors or shooting-stars are great bodies of metal which are sent spinning through the earth's atmosphere by the great force of gravitation, and they move so far and so swiftly that they take fire by friction with the air, and burn and melt as they whiz by until they fall to the earth, and cool to look like a great mass of iron ore. We see them flashing along the sky some nights, and I have even heard them whiz. Friction has to be taken into account, in considering the effect of any application of force. It stops and it holds. It makes heat and flame and electricity. It is greater in proportion to the roughness of the substances it affects. I was in a train of cars once when they had to stop because the wheels had grown so hot.

Prescott.—They ought to have oiled them more, and then it would not have happened.

Teacher.—The oil would have made the surfaces smoother, so that the friction would have been much less. Do you know how very much oil is used to make surfaces smooth and lessen friction?

Carrie.—Machinery has to be oiled very often, to go smoothly. I saw a man climbing all over the great engine in the steamer, with an oil-can.

Teacher.—Did you ever rub sealing-wax on woolen until it would attract other things toward it, such as hair or feathers?

Agnes.—I saw Louis doing it one day, and the sealing-wax was hot.

Teacher.—That is because the friction brought out heat and electricity. The heat and electricity must have been both in the wax; the friction brought it out. Some day we will say more about this, but now we are thinking about friction only as a means to stop and hold; sometimes of use and sometimes an obstacle to be overcome. An obstacle is not worth minding if we can only bring force enough to overcome it; we can soon learn to turn it to good account. *Friction* we may set aside for the present, and go back to our machines. You may all cut

an inclined plane from this paper, and wind it around your slate-pencil from the wide edge. What does this line twining around the pencil remind you of?

Willie.—It looks like a screw.

Teacher.—Here is a real screw. Twist it into this hole in the wood. The inclined plane is turned all around in the hole, gradually working its way wholly within. If the winding edge of the plane is sharp, it cuts its way in like a revolving wedge, or it pushes the resisting wood up its spiral inclined plane with a gradual force, easier to apply than the sudden blow upon a nail, which is only a straight wedge. Remember, then, the *inclined plane*, the *wedge*, and the *screw* are various forms of the same thing, and used in every variety of machine to assist man in the application of force to do his work. This *force* or *power* may be man's muscle, or the muscular power of some animal, the steam of an engine, water, air, electricity, or any of the forces of the earth which man has learned to use. The machines help the natural forces to do more work, and with greater ease than would be possible without them.

LANGUAGE NUMBER LESSONS.

BY ANNA B. BADLAM.

II.

With the children at the table, their objects arranged in groups of 2 and 3, or 7 and 2, etc., according to the number-cards which have been shown, try such a suggestion as this with them: "Children, let us play this morning that our objects are not balls or counters, etc., but something we should like very much to have or to buy." Then to the eager children the ordinary objects become to their vivid imagination, soldiers, barrels, trees, pennies, apples, peaches, etc., as the case may be; while from the animation displayed we can have no doubt of the interest taken in the work.

Or having given each child a card bearing a number, direct him to take as many objects as his card tells him. "Now, children, my number shall be larger than yours; I will take as many objects as my card tells me; now you may look and see how many objects you need to add to yours to have as many as I."

Or let the teacher's card bear a smaller number, the children to find

how many must be taken away from their group of objects, to leave just as many in their group as in the teacher's.

Or, "To-day, children, your cards shall tell you a number and a little word."

"Take as many objects as your card bids you, and we will play that they are boys or girls, or whatever the word on the card tells you."

"Now my, card tells you to get 2 more, and when you are ready we will have the stories."

If the lesson be Subtraction, "The card tells you to take away 2 objects from those you have."

The children will take pride in remembering these stories, and giving you the result, to be written on the board for slate-work later in the day. Children like variety, and the greater the variety of material the better results we shall reach. They take delight in what may be called, for convenience, the "pin-ball" lesson.

Let each child provide himself with a bright-colored pin-ball, furnished with common pins, while the teacher has one for her own use, of the size of a tea-plate, furnished with large, black shawl-pins.

With such questions on the board as $3 + 4 =$, $4 + 5 =$, $9 - 7 =$, $10 - 8 =$, give the direction, "Children, pull up 3 pins; now 4 more; tell me how many;" the result to be written on the board. Or, "Pull up 9 pins; now push down 7," the result to be written on the board as before.

After the children understand the signs $+$ and $-$, a portion of the class may be called out before the board, each child taking a question, and finding the result with the pins, while the remainder of the class is busy doing similar work at their seats, and putting the result on their slates.

A pleasant lesson may be given now and then, for variety, with what are called "palette butterflies," made from coarse brown paper, and painted roughly to imitate the spots and markings. Sketch rapidly on the board daisies cherries, clover-blossoms, etc.; put stout pins through the butterflies, and let the children direct how they shall fly about, the pins serving to fasten them to the frame-work of the board, wherever the children may wish them to alight.

Perhaps no lesson that can be given with little children is a greater source of pleasure to them than this imaginary walk in the fields.

— As far as possible, whatever distracts attention should be avoided. Children need every favoring influence in their weak efforts to give attention.

FIRST STEPS IN DRAWING.

BY ISABEL WELCHMAN.

I

There is no lack of methods of teaching elementary drawing to children. But are any of them entirely satisfactory for the younger children of our primary schools? There is nothing children delight in more than the free use of a pencil, on slate or paper. The child feels a great desire to represent in drawing the forms he sees in life, as well as to create forms of beauty. How can we best assist him in his amusement, and give valuable training?

A mother who understands the nature of her child can prepare him for drawing, even in his infancy. When she holds the little one upon her lap, by taking the forefinger of his right hand she can assist him to draw simple objects he sees about him, in clear outlines in the air, or letters in damp sand spread thinly on a little board. This latter material is one that could be used in our primary schools, as it is used in some parts of Europe, where children are taught to write and cipher in the sand, and by doing so acquire great skill and steadiness of the hand before using pencil, pen, or paper. A teacher who visited those schools where the sand-tablet was used, told me the children excelled all others he ever saw, in beautiful writing. We must have a clear understanding of what is the most essential thing to be aimed at, in teaching children drawing, whose hands are weak and undeveloped, whose ideas of size and form are vague and indefinite.

The child's *hand* must first be considered as being the most important instrument, without which he can do nothing. What shall we put into the hand of a child to draw with, and upon what shall he draw? Use the sand-tablet referred to, and a little pointed stick, as the first instrument, if such can be obtained. The board should be about ten inches square, inclosed in a little frame half an inch above the edge of the board on which the sand is held; the sand slightly damp and sufficient to cover the board a quarter of an inch thick. With a little thin flat stick, as a piece of a lath or ruler, the child can smooth over the sand at any time. There is nothing children delight in more than a sand-bed, as any teacher knows who has tried it; and I have myself used sand successfully in teaching elementary geography, allowing the children themselves to make islands, lakes, bays, capes, etc., in the sand, adding water as needed.

Any teacher who has taught little children to write or draw, knows how they grasp the pencil or pen with all the strength their little hands

possess, in order to make a good mark, as they call it. Now this tenacious grip of the pencil in the most awkward manner is the thing most to be avoided. How can we prevent this, and assist them to draw with a light and more flexible hand? for drawing is something more than making a mark, even though that mark be the right length, in the right direction and position. The mark must be made with expression and meaning, and a delicate handling of the pencil, pen, or paint-brush is of vital importance, if one wishes to draw anything more than a mechanical, geometrical figure, or lines in drafting.



FIRST STEPS IN NUMBER.

BY IDA WHITSET BLACK.

IV.

Object.—To review the lesson on *two*; to give a lesson on *three*.

Following the outline of the method on *two* (see Sept. No.), review, and have placed on the desk with number-sticks, and on the board in figures, this formula:

$$\begin{array}{rcl} 1 + 1 & = & 2 \\ 2 \times 1 & = & 2 \\ 2 - 1 & = & 1 \\ 2 \div 1 & = & 2 \end{array}$$

"Georgie, if I had 1 apple, and you would be so kind as to give me 1 more, how many would I have?" "You would have 2 apples; because 1 and 1 are 2."

"Gracie Steele, if you had 1 orange, and Ella Dougherty had 2 times as many, how many would Ellen have?" "She would have 2 oranges; because 2 times 1 are 2."

"Lina, if your papa were to give you 2 dimes, and you were to buy peaches with 1 dime, how many dimes would you have left?" "I would have 1 dime left; because 2 less 1 are 1."

"Susie Kennedy, if this sponge-basin holds just 2 quarts of water, how many times can you fill a quart-cup out of it?" "I could fill the quart-cup twice; because 2 contains 1 twice."

After this form of statement can be readily given, pass to the next step, having pupils form their own problems.

"Who can tell me something about *one and one* and *pencils*?" With considerable help, Luella is at last able to say: "If I have one pencil at school and another at home, I will have two pencils; because one and one are two."

"Class read the second number." "Who can tell me something about that number and some *marbles*?" By helping again, Charlie Jones soon says: "If I had one marble, and Eliza has two times as many, he has two marbles; because two times one are two."

"Class, read the next number." "Who can tell me about that number and some *nickels*?" By suggesting several things that might be bought with a nickel, some one finally ventures: "If I had two nickels, and were to spend one nickel for candy, I would have one nickel left; because two less one is one."

"Class, read the next." "Willie may try." "My pencil-box contains just two pencils. I can take one pencil out of the box two times; because room for two contains one two times."

"Now I am going to put away my number sticks, and take these numbers off the board, so that I can find out who can *think* these numbers without seeing the sticks or the figures. I am going to see whose hand comes up first, every time." "How often can I take one crayon from the box before I will have two crayons?" "How many times must I lift up one crayon before I can have two?" "How many times must I take two crayons before I can have two?" "Two crayons are how many more than one crayon?" "Two crayons are how many more than none?" "If I have two dollars, and give one away, how many have I left?" "If I give both dollars away, how many have I left?" "If Josie has one doll, and Jennie has twice as many, how many dolls has Jennie?" "If one pencil cost one cent, how many pencils can I buy for one cent?" "For two cents?" "How many sticks is one-half of two sticks?" "What number is one more than one?" "If there is one eraser at the board, and I want two there, how many more must I take?" "If one pint of milk cost two cents, how many pints can I buy for two cents?"

From such questions, and many others which should be asked, teachers readily see that minor numbers are comprehended, in addition to the leading ones which belong to the regular outlines of the Grube method.

Now place on the board, as a guide to desk-work, these numbers:

$$\begin{array}{l} 1 + 1 = \\ 1 \times 1 = \\ 2 \times 1 = \\ 2 - 1 - 1 = \\ 2 - 2 = \\ 2 \div 1 = \\ 2 \div 2 = \end{array}$$

Tell the class to open their number-boxes, and count out the *objects* in place of the numbers you have written, and to place also the number of objects required to complete each statement. Be sure to always exam-

ine this desk-work. Commend neatness of arrangement and accuracy ; Criticise untidy desks, unfinished work, and inaccurate statements.

As you value the enthusiasm and prosperity of your class, and your own peace and happiness, I beg of you not to leave these combinations until they are familiar to each member of your class. But when all are quick to form their own problems, correct in statement and accurate in result, pass to the consideration of the next number,—

THREE.

Following such plans as those given in the lesson on *two*, develop the new combinations slowly. First compare the new number with *one*, then with *two*, developing these combinations :

$$1 + 1 + 1 = 3$$

$$3 \times 1 = 3$$

$$3 - 1 - 1 = 1$$

$$3 \div 1 = 3$$

$$2 + 1 = 3$$

$$1 \times 2 + 1 = 3$$

$$3 - 2 = 1$$

$$3 \div 2 = 1 + 1$$

Finally, combined with the review work, add to the above regular Grube outline all the additional combinations as suggested in the lesson on *two*. If your class has fully mastered the lesson on *two*, no trouble will be experienced with any of these combinations, save those in which a remainder is found. Read this, and teach it: Three contains two once, and one over ; or, Two is contained in three once, and one remains. Allow choice in this whenever one form seems clearer than the other. In forming their problems they should merely be taught to add to their regular statement, "and I have one left," or remaining.

By the time your class have completed the study of *three*, they will be so accustomed to the *facts* of numbers, and to the forms of statements, as to justify you in attempting to break up the monotony of pupils beginning their problem with an 'if,' and with something they like to eat, and themselves the objects and central points. But do not try to do this, however monotonous it may be to you, until there is nothing else to bother them or worry you. Such questions as the following should be used to apply and foster their knowledge of *three* :

"I have one apple ; if Susie gives me one, and John gives me one, how many will I have?" "Josie has one hat ; if Ella has three times as many, how many has she?" "If Ella were to give one hat to you, and one to Jennie, and one to Emma, how many would she have left?" "If Ella has three hats, and wants to divide them between you and Sadie, how can she do it?" "Two and one are how many?" "One times two, and one are how many?" "I have three pencils ; if I lose two, how many have I left?" "I have three reward-cards ; how can I divide them between two boys?"

"Class, keep with the pointer, and tell me quickly the answer to these questions on the board :

$$3 - 1 - 1 - 1 =$$

$$3 - 2 - 1 =$$

$$3 - 1 - 2 =$$

$$3 - 2 =$$

$$3 - 3 =$$

$$3 - 2 + 1 =$$

$$3 - 1 + 2 =$$

$$2 - 1 + 1 + 1 =$$

$$2 - 1 - 1 + 2 =$$

$$3 - 2 \div 1 =$$

$$3 - 1 - 1 - 1 + 2 =$$

$$3 - 2 + 1 - 1 =$$

$$2 \times 1 - 1 + 2 =$$

$$3 - 1 - 0 - 1 =$$

$$3 - 1 + 2 =$$

$$3 + 2 + 1 =$$

$$1 + 1 + 1 + 0 =$$

$$2 - 0 - 1 + 2 =$$

Give instruction in desk-work as in the lesson on *two* ; after that is well comprehended, teach them to transfer the desk-work in *objects* to slate-work in *figures*.

If a pupil fails to give the correct result in a problem, be sure to give him the objects to "count it out," and begin at the first of his problem again, and give all the statements correctly before he leaves it. Never accept unfinished work or inaccurate work. Should a pupil fail repeatedly on any one problem, even after being sent to count the objects, let some other pupils solve the problem for the backward one ; but be sure to have the latter repeat it correctly after it is recited for him.

Vary these exercises by sometimes drilling the eye alone, showing objects, or the form on the board ; sometimes the ear alone, asking questions ; sometimes the memory alone, having pupils volunteer a problem on any number they *think*. These variations relieve you, inspire the pupils, and command attention. And with all your regular work and its variations, *be patient*, for "There is no great achievement that is not the result of patient *working* and waiting.

ZOOLOGY FOR THE LITTLE ONES.

BY CLARABELLE GILMAN, JAMAICA PLAIN, MASS.

IX.

THE STAR-FISH AND THE SEA-URCHIN.

At the end of our last lesson we had just found the rows of ambulacral and inter-ambulacral plates. Is all this work upon plates becoming a little tiresome? Then, if it is possible to procure a large sea-urchin from the Mediterranean, we spend a little time in admiring its beautifully fluted spines, and in tracing out the rows of plates, here so large as to be easily seen. After this, we go back to our little sea-

urchins with renewed enthusiasm, knowing that they have all the parts that the large one has, and eager to find them. We take up our study where we left it in our last paper.

"Let us see if the sieve is at the end of a double row of ambulacral, or of inter-ambulacral plates."

"It is at the end of the inter-ambulacral plates."

"The sieve is a part of a large plate with an opening in it. See if you can find the opening. Besides this sieve-plate there are four more large plates ranged around this central piece of the back, each of them having an opening in it. These are openings through which the eggs pass out. You may not be able to see all these plates very plainly on the sea-urchin, so I have drawn them on this orange, to show you their shape and position. I think you can find them on the shell by the egg-openings in them."

Of course, if one has the large species of sea-urchin before mentioned, there will be less need of the orange, though even then it will prove a help.

"How many of these plates are there, counting the sieve-plate?"

"Five plates."

"What does each plate have in it?"

"An egg-opening."

"You see on the orange I have drawn a small plate next to every large plate. Each small plate has an opening where an eye used to be, so we will call the five small plates the eye-plates. If you look carefully, you will find the eye-openings at the ends of the rows of ambulacral plates."

Five of these plates are so small that they have to be found chiefly by the openings in them, and the other five can be called large only by comparison with the former, so that the finding of the ten plates is one of the hardest parts of the lesson. Children's eyes will often see these little things, however, quicker than those of older people.

We now examine the central disk on the sea-urchin's back, which we find to be of skin with tiny plates in it. On the under side of the shell is another disk, with a white star in its center.

"How many parts has the star?"

"Five parts; and I think they are the sea-urchin's teeth."

"Yes; that star is made by his five white teeth. Where is his mouth?"

"Its in between the teeth."

"The mouth-disk of some of your sea-urchins is broken, and you can see the strong jaws in which the teeth are set. With these sharp-pointed teeth our friend can scrape off from the rocks the sea-weed that he likes so well. What do we find in a circle not far from the mouth, like so many servants?"

"There are bunches of forks."

"Have we found any nerves on the outside of the sea-urchin?"

"We couldn't see them among the spines."

"The sea-urchin has his nerves tucked away inside his shell. Would it be safe for him to carry them on the outside, as the star-fish does? Has he any nice little hollow to put them in?"

"No; there aren't any hollows, and they might get hurt."

"I think if you notice carefully all the animals we study, you will find that nerves are always put in a safe place."

We close the lesson with a general review of all the parts we have found in the sea-urchin.

For the comparison of the star-fish and the sea-urchin, which should occupy the whole of one lesson, specimens of both animals are distributed, as well as cross-sections of rays of star-fishes. Much hard work must be done by the teacher in preparation for this lesson. The diagram given by Professor Hyatt, in No. V. of *The Science Guides*, must be drawn with pen and ink on the peel of an orange; and the manner of making the cuts between the plates in order to obtain the five rays of the star-fish, must be gone over again and again until it is mastered, and the real similarity in structure is clearly seen.

From our cross-sections we review the plates on the arm of a star-fish, finding the double row of ambulacral plates in the center, and the single row of inter-ambulacral plates on either side. We remember that the sieve is on the back, as in the sea-urchin, but that the eyes are at the tips of the arms. Now we hold up the orange.

"What have I drawn on this orange?"

"The plates of a sea-urchin."

"What is this circle on the back?"

"The little round disk."

"What is this large plate with marks on it that were meant to make it look rather spongy?"

"That's the sieve."

"What are these four other large plates?"

"Those are plates with egg-openings in them."

"What are these five little plates that I have drawn around the central disk?"

"Those are the eye-plates."

"Starting from the sieve and passing down the outside of the orange, we follow two rows of large plates. What are those called?"

"The inter-ambulacral plates."

"Again, starting from an eye-plate, we follow a double row of small plates. What are these called?"

"The ambulacral plates."

"What do these plates in the sea-urchin bear on the outside of them?"

"They carry the tube-feet."

"What do these plates in the star-fish carry?"

"They carry tube-feet, too."

"Now, if I want to cut this orange sea-urchin, so as to make a star-fish out of him, what plates must I make in the middle of each ray?"

"The two rows of ambulacral plates, because they have the tube-feet."

"Shall I have any plates on each side of the ambulacral plates?"

"You must have one row of inter-ambulacral plates on each side."

"What must I have at the end of each arm?"

"An eye."

"I will commence by cutting partly around an eye-plate, so as to separate it from the central disk, but leave it connected with the plates running up and down the shell. I want a double row of ambulacral plates in the middle of the arm, and a single row of inter-ambulacral plates on each side of them, so I must cut between the rows of inter-ambulacral plates. I will be careful to leave the ray attached to the round piece on the under side, which is the mouth-disk of the star-fish. I will cut off all the other arms of the star-fish in the same way. Now, what is left on the sea-urchin's back?"

"Only the sieve and the plates with the egg-openings, and the round disk."

"Does the star-fish have any of these on his back?"

"He has the sieve."

"The egg-openings of the star-fish are right in here at the angles of the arms, so we shall have to cut off the plates from the back of the orange and tuck them in between the arms. Which side of the star-fish have we made? You can tell if you think which side the tube-feet are on."

"You have made the under-side of the star-fish."

"What have we left for his back?"

"Only the sieve and the little round disk."

"Suppose this disk to be rubber, so that I could stretch it out over top of the arms of the star-fish, then we should have a complete back for him, should we not?"

"Is that little disk all the sea-urchin has that answers to the back of the star-fish?"

"Yes; that is all. Now, how could you make a sea-urchin again out of your star-fish?"

"Why turn the arms up over the orange, and put the egg-plates back where they were before."

"So you see, children, a star-fish is like a spread-out sea-urchin, and a sea-urchin like a curled-up star-fish. Each has a sieve, spines, and tube-feet, and tiny-forks, and each has ambulacral and inter-ambulacral plates arranged in the same way. Do you think I have meant to teach

you that a star-fish was ever made out of a sea-urchin, or a sea-urchin out of a star-fish?"

"No, indeed."

"I have only wanted to show you how our Heavenly Father can take one pattern, and by changing it a little, sometimes in one way, sometimes in another, can make very different animals. There are still more animals made on the same plan, such as the sea-cucumber, which show how God carried out this pattern in a way you could never think of without seeing the creatures. I think you will all like to see how another pattern is carried out in different ways, as we come to study new animals."

Of course, no teacher of the lowest grades would attempt to give this comparison to her pupils, though even the little ones will notice that both animals have sieve and spines, tube-feet and forks. But for those old enough to take it, the whole comparison will prove a most valuable exercise in tracing similarity of structure.

The following letters were written by a little girl twelve years old, after receiving the lessons contained in this article and the two preceding. They are given here, without corrections, just as they were written. It is hoped that this practical illustration of the amount that children can gain,—and carry away with them, too,—from such simple lessons as these, may be the means of inducing more teachers to attempt them with their classes.

JAMAICA PLAIN, Dec. 13, 1880.

Dear Miss Gilman:

The sea-urchin is found in the water on the rocks. It is the shape of an orange flattened at both ends. It is covered with spines that it defends itself with. Between the spines are three pronged forks that it keeps the little particles away from the body with. Between the forks are tube-feet or suckers that it walks with. There are five rows of spines five double rows of forks and five double rows of tube-feet. On the back is a sieve on the end of a double row of spines.

With five openings. There are five plates around the seive that hold eggs. Between these plates are five plates, that the eyes are on. The large ones are on the end of a row of spines. The smal ones are on the end of a row of tube-feet.

Good bye,

A. E. R.

JAMAICA PLAIN, Dec. 21, 1880.

Dear Miss Gilman:

The sea-urchin is like the star-fish because the tube-feet are on the ambulacral plates in the sea-urchin and the star-fish. The spines are on the inter-ambulacral plates in the star-fish and the sea-urchin.

You can make a star-fish out of a sea-urchin by cutting between the double row of inter-ambulacral plates so as to have a double row of ambulacral plates and one row of inter-ambulacral on each side of the double row of plates on each arm. Then put the plates with the eyes on the end of each ray and the ones with the eggs between the arms and that is the lower side. Then put the part with the seive on the back and grows to the end of the arms and makes the back and put the upper part and the lower part to gather and that makes the star-fish.

Good bye,

A. E. R.

OUTLINES OF OBJECT-LESSONS.

BY ANNA.

III.

1. *The sun in spring.*—Where and when is the sun now rising? Where is it at noon, morning, afternoon, evening? Compare the length of day and night. Sun shines, gives light, warmth; light, twilight, darkness, shade. Form,—apparently small, far off. Without the sun the earth would be dark and cold, without life.

2. *Signs of spring.*—It gets daily warmer. Winter is past; ice and snow are melted; we have spring: the grass, flowers, and herbs (which?) green; trees shoot forth their leaves, buds, and blossoms; flies and beetles wake up, fly about and hum; birds return (which? what are they doing?); warm air, rain, sunshine. What is the gardener, the farmer doing?

3. *Weather in spring.*—Clouds overspread the sky; their color; their direction of moving; what causes them to move. From the dark clouds fall small, large rain-drops; everything gets wet; the water flows off. The wind chases the clouds; the sky gets clear, deep-blue; the sun shines, warms animals and plants, which thrive better now.

4. *The tree.*—Roots (where?) stem,—erect, straight (vertical), round, thick, or thin; bark,—smooth or rough; wood with tissues; to saw, to hew. Top, branches, limbs, twigs, buds, leaves (where, how, when?), blossoms (same queries), fruits (what kind?), height, strength,—during a storm, during winter, summer. What kind of trees do you know? where grow the largest (tallest, thickest) trees?

5. *A walk.*—The children form lines and walk by two's. Sometimes the teacher orders them to halt, and directs the attention of the pupils to certain objects. The conversation will take place after the walk.

At what day, hour, did we meet? Through what streets did the way first lead, and what did we see there? What roads, bridges, brooks, rivers, buildings, railroads did we pass? In what direction did the water flow? In what direction did we go? Did the sun shine? Was it warm, hot? Where did you see meadows, herds, fields, farmers at work, woods, mountains, valleys, villages, manufactories, etc.? What remarkable plants, animals? Saw you the moon at evening? Where was she, and how did she appear?

6. *Flowers and leaves.*—In the garden, field, meadow, woods, walks, window, grow plants (trees, bushes, shrubs, herbs, flowers, grass). Which of these can you name? What flowers did you gather? Stem, calyx, corolla, stamen, pistil, color, form (bell-shaped, like a disk, funnel,

etc.), odor, place of growth, etc. Nosegay (bouquet), garland, wreath.

Leaves : stem, form, texture, surface (smooth, hairy, downy, wooly, etc.), color, smell, etc.

7. *Bridge*.—Purpose. Parts : arches, rails, balusters. Material. Form.

8. *Fieldwork*.—The farmer rises early (when ?), yokes oxen, harnesses horses (purpose ?), carries manure (to where and why ?), plows, harrows, sows (what, and how ?). How is he planting potatoes, cabbage, turnips, etc. ? weeds (what, how ?), protects the seed (how ?).

9. *Rosebush*.—Has also roots, but more than one stem. Difference between tree and bush. Color of bark, — thorns, leaves (compound), margin. Flowers, calyx, corolla, color, many yellow stamen. Place.

10. *Violet*.—Where is it growing ? Roots, fibrous ; leaves, heart-shaped ; flowers, deep blue ; five leaves like the calyx, irregular ; five stamen, a hollow spur. It is lovely, odorous ; symbol of modesty.

11. *Lily*.—Garden plant, bulbous plant. Bulb, large, yellowish, scaly ; stem,—a yard high, simple, round, erect, straight ; leaves,—entire margin, sessile, conjugated, the lower leaves larger than the upper one ; flowers,—large, white, beautiful, odorous, perianth of six petals with ends bended backward, six stamen with stigmas, one pistil ; seed, inclosed in a three-celled capsule. Symbol of purity.

12. *Bean*.—Roots, stem, leaves, blossoms. Stem,—long, winds upward around a stick,—some have no vines ; leaves,—alternate, compound (oval) ; flowers,—four petals, color ; pods,—long, smooth, green, containing seed (beans). Plant a bean, and after a fortnight give the result of your observation. How do we use beans ? Compare beans and peas.

13. *Caterpillar and butterfly*.—What animals live in the garden ? Caterpillar (a distinct individual is shown to the pupils, and its peculiar individual appearance pointed out) ; head, body, color, eight pairs of feet ; crawls ; feeds on leaves and buds, greedy ; spins its cocoon (pupa, chrysalis,—to be shown), which will turn into a butterfly.

Butterfly : head with bright eyes, two thin feelers (antennæ), trunk ; thorax with three pairs of feet, and four powdered wings ; body (abdomen). Soars from flower to flower (why ?) ; lays eggs (where ?). How do butterflies hold their wings while resting ? What butterflies do you know ?

14. *Bee*.—Head, breast, abdomen, trunk, feelers, eyes, sting ; four veinous, transparent wings ; six feet. Flies (whereabout ?), hums ; live in hives, prepare honey and wax (where do they gather these ?) ; queen, drone-bee, working-bee. Symbol of industry.

15. *Frog*.—Croaks during spring (where ?). How is his position in the water ? Wide mouth, large eyes standing out ; four legs, fore-legs

much shorter than the hind legs, which have also webs (why?); color, slimy, cold blood, no hair, feathers, or scales, naked; eggs (spawn); jumps and swims. How do young frogs look at first? later? Toads?

16. *Fish*.—Form. Principal parts: head with mouth, gills, fins (where? purpose?); tail; scales; color; bones; blood (cold or warm?). Lives in the water, swims, can move quickly in any direction by means of its fins, plays, feeds (on what?), dumb. Dies in the open air. We eat fish boiled, fried, salted, smoked, etc. What kind of fish do you know? Describe the ways to catch fish.

17. *Cherry and Plum*.—Cherry: first white blossoms, then green, red, dark red, bright black, smooth, round like a ball; sweet juice, round stone with kernel; grows on small stems. Cherry-tree: stem, top, branches and limbs, buds and leaves.

Plum: much like a cherry, thicker, oval, sweet; stone oval, with kernel; stone-fruit. Use of both fruits.

18. *Summer*.—When and where is the sun now rising? setting? where is he at noon? length of shades at noon; 6.00 o'clock at morning; evening? How many hours from sunrise to noon, from noon to sunset? length of day, night.

Some fruit is ripening: which in the garden? woods? which grow on trees, on shrubs, vines, etc.?

Days are long, hot; sometimes a thunderstorm. Thunder-clouds,—their form, color, direction of moving (compared with the wind). Lightning,—sometimes dangerous, attracted by objects, do not go under tall trees. Thunder,—perceptible after a flash of lightning. Heat,—sultriness precedes thunderstorm; after it, cool and refreshing air.

Rainbow,—where and when is it appearing; position to sun; form; seven colors (shown to the children by means of a prism).

PRACTICAL LESSONS IN NATURAL HISTORY.

BY MARY D. MCHENRY, PHILADELPHIA.

LESSON IX.—SUB-DIVISIONS OF THE VERTEBRATES.

As the children have become familiar with the vertebrate animals, the next lesson will develop the divisions cold-blooded and warm-blooded, then those of beasts, birds, reptiles, and fishes. Perhaps it will be less confusing after learning the first two classes, to study only the beasts for this time, taking up the others at subsequent lessons; but I

have had pupils comprehend all the distinctions in one lesson, with blackboard illustrations.

Ask the pupils if they have ever touched a dog, cat, or canary ; if so, were they warm or cold? Again, question them in regard to a toad, frog, or fish. Thus they will see that some animals are *cold*, others *warm*. Let them name a few under each, but reserve the blackboard exercises for further classification.

A nice distinction between beasts and birds is in regard to the number of legs ; another, the kind of covering ; but the wings are the greatest distinctive features. Tell them to name some animal with four legs ; then some with two ; jot the answers on the board in two columns, quite far apart. After a number have been given, ask what name we give to all in the second row. "Birds," quickly will come the reply ; but probably few, if any, can tell the name of the first class ; therefore you must supply their need. I like the names *beasts* and *birds* better than *quadrupeds* and *bipeds*, but others may prefer the latter. A nice blackboard exercise can be developed in this way. Tell me something that a beast has. 'Eyes' will be one answer ; 'Nose,' 'Mouth,' 'Legs,' &c., other replies. These can be arranged on the board in a similar manner to Lesson VII. Thus :

VERTEBRATES — (WARM-BLOODED).

BEASTS.		
<i>Do.</i>	<i>Have.</i>	<i>Live.</i>
See	with eyes.	Earth.
Hear	" ears.	Water.
Smell	" nose.	
Eat	" mouth.	
Bite	" teeth.	
Walk	" 4 legs.	
Breathe	" lungs.	
Covered	" skin.	

NAMES.	
Lion.	Wolf.
Tiger.	Panther.
Bear.	Rat.
Camel.	Whale.
Fox.	Mole.

BIRDS.		
<i>Do.</i>	<i>Have.</i>	<i>Live.</i>
See	with eyes.	Air.
Hear	" ears.	Earth.
Smell	" nose.	Water.
Eat	" mouth.	
Bite	" bill.	
Walk	" 2 legs.	
Breathe	" lungs.	
Fly	" wings.	
Covered	" feathers.	

NAMES.		
<i>Land.</i>		<i>Water.</i>
Eagle.	Parrot.	Swans.
Owl.	Turkey.	Ducks.
Robin.	Chicken.	Geese.
Swallow.		Crane.
Dove.		Heron.

Question different children about different animals, if vertebrate ; whether warm-blooded or cold-blooded, a beast or bird, till you are sure they know the distinctions and differences. Be particular in reference to the covering, number of legs, wings, and bills. If they say a whale or seal is a fish, leave your explanation till next lesson, assuring them they are beasts ; thus, exciting their wonder and curiosity, they will eagerly come to the next lesson on the subject.

THE LITTLE BOY THAT KNEW.

BY L. J. B.

I.

The children were all quiet in the school ; but they were not quite still, because the smallest ones in the kindergarten room were doing things, and those in the study-room of the higher grade were studying their lessons. But they made no more noise than was proper. A tall man came in with a bright-looking little boy, and talked to Miss Frost, the head teacher, in a low tone, about placing his boy in the school.

Then a queer-looking big, dark-brown bug, almost black, came slowly out of a large crack in the plaster overhead, and began to crawl about in a slow, rambling sort of way, as if he did not know where he was, or what was going on, or whether he ought to be there. Pretty soon Mr. Bug stepped upon a loose bit of whitewash, and down he fell, thump ! on the desk in front of little Mary Cole, who was trying very hard to keep her eyes on her reading-lesson and not look at the kindergarten children through the door of their room. Mary was surprised ; she jumped. Mr. Bug had fallen on his back, and all his legs were wriggling in the air, as if he was surprised, too. Mr. Bug would like to jump, but he couldn't turn himself over. Mary shut up her book, took a good aim, and sent Mr. Bug spinning across the room. Harry Simmons saw it, and tried to hit Mr Bug on the fly with his slate, but missed him. The bug fell on the floor right side up. All the girls at the front desks drew up their feet, and made a good ready to scream. But a little six-year-old boy, whose name was Johnny Bell, carefully picked up Mr. Bug and put him in a paper box which he had learned to make in the kindergarten. The bug tried in an awkward way to crawl out ; but he could not climb up the smooth sides of the paper box.

Then little Johnny took a pencil and a piece of paper from his desk, and made ready to try and draw a picture of Mr. Bug. Before he began to draw, he lifted the bug out of the box and looked at him very carefully all over. He counted his legs with the point of his pencil, and he looked at all their joints, and how they worked. After that Johnny put the bug down in the box, and began to make his portrait. The bug sat still ; but I suppose he was thinking that, if he ever got out of that scrape alive, you would never again catch him going to school among so many children.

It was hard work for so small a boy as Johnny to draw a picture of the bug, though Johnny could draw very well, indeed, for so little an

artist. He had to rub out and do his lines over many times, but in about ten minutes he had made a pretty good portrait of Mr. Bug. Of course it was only pretty good for a little boy ; and a drawing-teacher would think it a very rude sketch. But it had all the legs, and all their joints, all put on the right way, and the bug's eyes, and the feelers around his mouth. Anybody who knew much about bugs could guess what sort of a bug it was meant for, at least. A good many boys, twice as old as little Johnny, could not draw a bug as nearly right.

Of course, little Johnny's doings made many of the children look at him ; and some of those nearest to him stood up and stretched their necks to look over his shoulder. This made a stir in the school ; and the tall man, who had seen the whole affair, spoke to Miss Frost about it. He thought it disturbed the children's studies, and he expected Miss Frost to speak sharply to Johnny, perhaps punish him. But Miss Frost merely asked Johnny, very pleasantly, what he had got there.

"I've got a big bug," said Johnny ; "and he is such a queer fellow that I am trying to make his picture"

"Bring him to me, and the picture, too," said Miss Frost.

So Johnny walked over to her desk, and put the bug in his box down before Miss Frost, and laid his drawing beside it. In carrying the box he gave it a little jar, and Mr. Bug rolled over on his back, and began to kick with all his legs up again. Miss Frost was a little afraid of bugs, and she did not get very close to it, while Johnny was setting him on his legs again. Then Miss Frost looked at the bug, and at Johnny's picture of him, and said :

"Pretty well done, Johnny. Very well done. Some of the joints are too long ; but I don't think any of the boys could do it better the first time trying." Johnny looked very much pleased.

"Can you tell us anything about this bug?" asked Miss Frost.

"Yes, ma'am," said Johnny. "He has got six big legs, and two little legs. Each of his big legs has four joints ; and each of his little legs has three joints. His legs are all fastened on his underside, close together. Four of his big legs are bent backward, and two forward. His little legs are bent forward, too. He has a big pair of nippers on his head, with little prongs on 'em ; and he tries to bite with 'em. His eyes are on the edge of his head, and they stick out. The ends of his legs look like little saws. The feelers on his mouth look like little feathers. He has a big crease in his back, and he has a shell behind it, and a shell before it, and a queer ring around his neck. He has four wings,—two wings of shell, and two wings just like lace under his shell wings, but he don't fly,—I guess he can't see well enough in the light. And he has little hooks on his feet."

"Very good, Johnny," said Miss Frost ; "I see you have studied

him pretty closely. Can any of the other children tell me the name of this big bug?"

Several of the children said it was a beetle. Johnny said he thought it was a stag-beetle; his papa had shown him one just like it, but not such a whopper as this fellow.

And so it was. Johnny's description was not quite correct; but the real name of the bug who had his photograph taken by Johnny was Mr. Stag Beetle.

Then Miss Frost said that she was glad to see Johnny study the bug, and try to draw him; it was a great deal nicer than to step on him and crush him, as thoughtless boys do.

In a little while school was dismissed, and the children out; but the tall man with his little boy staid a few minutes to talk with Miss Frost, and much of their talk was about Johnny Bell and his ways.

WHAT MISS FROST SAID TO THE TALL MAN.

The children can skip this chapter if they like; but I hope their parents will read what Miss Frost said to the tall man.

"The plan of this school," said Miss Frost to the tall man, while one of the other teachers was putting the room in order, "is to teach the children to see things, to do things, and to think. We consider these three more important than any lessons to be learned from their books. Mr. Huxley said, you remember, that if a boy was trained to observe, the rest of his education would take care of itself. When a child sees a thing,—I mean really sees it,—sees all there is of it, not merely looks at it carelessly,—that child knows about that thing. When a child can do a thing, that child knows about that thing. When a child thinks about a thing, that child is learning to know. We wish all our children to know, and not merely to learn lessons about things. There is a great difference between knowing and merely learning. Now little Johnny Bell, as you saw, was trying to know something about the beetle. You might tell him all about it, or he might read all about it in a book, but he wouldn't know it. But what he saw for himself, that he knows. Come here, Harry," she said to the tall man's little boy, who was looking at some pictures in the kindergarten room. "What picture was that you were looking at?"

"It was Little Red Riding Hood and the wolf," said Harry.

"Well, what does the wolf look like?"

"Like a big dog," said Harry.

"Did you ever see a real wolf?"

"No, ma'am," said Harry; "but I should like to see one, if he was in a cage."

"Do you think, if you should see a wolf in the woods, you could tell him from a dog?"

"I don't know," said Harry.

"But if you should see a dog in the woods you would know it was a dog?"

"Oh, yes," said Harry, eagerly. "I should know a dog anywhere ; but I know I should know him if he was a colly dog, like my Jack."

"Would you know a wild-cat?"

"I don't know," said Harry.

"But you would know a tame cat?"

"Yes, ma'am ; I know I should know a cat if it was like my cat."

"You see," said Miss Frost to the tall man, "that your boy knows what he has seen ; but he does not know what he has only heard or read. The children who are taught that an island is a body of land surrounded by water, do not know nearly as much about islands as the children who have attended picnics on the islands in our river. I think Johnny Bell knows more than any other child in the school, though he is only in the lowest class in this room. He can draw pretty well, as you saw. He can make all the things of the kindergarten. He knows every kind of wood which is used in the shops, and many minerals. He knows a good deal about modeling. His father is a newspaper man who goes everywhere about the city, and he has taken his boy on visits to all the foundries, smelting-works, factories, shops, dock-yards, glass-works, potteries, chemical-works, tanneries, and other industries, and explained to him their processes. He has seen things made, and the materials they are made from. In short, that boy has been taught to see things."

"But," said the tall man, "I wish my boy to play a good deal, and not try to be a prodigy. Don't you think it hurts children to cram too much?"

"Johnny Bell has not crammed," said Miss Frost. "He is as full of frolic as any boy I know. His father does not wish him to be pushed in his studies. But he learns to know things while he is at play, and without being aware that he is learning. Johnny is to have a little party of his playmates visit him Saturday afternoon, and, if you like, I will procure an invitation for your Harry. When he goes home, after the party, he can tell you how Johnny plays, and whether the children have had a good time, and what he has learned while playing ; and it will help him get acquainted with the children of the school."

Harry said he would like to go very much ; and so it was arranged.

OUR NOTE-BOOK.

THE TEACHER'S TASK.

Yes, sculptor, touch the clay with skill;
 Let lines of beauty curve and flow,
 And shape the marble to thy will,
 While swift-winged fancies come and go,—
 Till the stone, vanquished, yield the strife,
 And some fair form awake to life,
 Obedient to thy beckoning hand,—
 And thy name ring through all the land!

And, painter, wield the brush with care;
 Give firm, true touches, one by one,
 Toil on patiently, nor know despair;
 Open thy whole soul to the sun,
 And give of love's serene-repose,
 Till the dull canvas gleams and glows
 With truth and wealth of sentiment,
 And thine own heart shall be content!

But, teacher, mould the tender mind
 With daintier skill, with dearer art,
 All cunning of the books combined
 With wider wisdom of the heart,—
 The subtle spell of eyes and voice,—
 Till the roused faculties rejoice,
 And the young powers bloom forth and bless
 The world and thine own consciousness!

— *The Teacher.*

We hear many complaints from parents who have children in the primary schools, in regard to teachers keeping them "after school-hours" for "failures" in their lessons. The practice is one that should be universally discontinued. The sessions for young children are, in most schools, too long, and the habit of detaining little children, who are wearied and restless, with a view to secure profitable study after school, is absurd. Teachers are often nervous and fretful lest their pupils should not do the work expected of them by committees and superintendents, and are led with a good intention into this method of remedying the defects of scholarship. Long experience and careful observation teaches that the remedy only increases the trouble. School committees are becoming aware of this common practice, and, we are glad to know, in many cities and towns frown upon it. In a city not far from B——, a teacher who had worn out her nervous system by a score or more years of *teaching* and *fretting*, had this habit, much to the annoyance of parents. The committee of her school had his attention called to the practice, and visited her school-room nearly an hour after the close of the regular session of school and found nearly one-half her class detained for "failures." He kindly remonstrated with her on his first visit, but she persisted in her course, and he made two or three subsequent calls and found about the same number of pu-

pils detained. He then sternly rebuked the teacher, in private, for her course. She excitedly demanded of him what she should do to make the *dunces* study better. He smilingly whispered into her ear, *resign*. The cure was complete. The school passed under the control of a healthy, vigorous, bright teacher, who had studied the art of teaching, and her class became in a few weeks one of the most enthusiastic in the city. The "dunces" had all vanished. It is coming to be more and more felt that Emerson was right when he said, "I care little what my daughter studies; the important thing is to know under what teacher she studies."

All agree that natural aptness has much to do with the success of the teacher, especially in the management and training of young children. Were we called upon to define what is meant by "natural aptness," we should say that it consists very largely in the ability to fix and hold the attention of all the pupils to the school work. Tact is an important element in the teacher to be exercised in securing and retaining the interest of the young, and in concentrating their minds upon the subjects taught. Emerson once said, "the hardest thing to do in the world is to think." The successful teacher has more than her own thinking to do; she must *train her pupils to think* also. The child must be educated to observe closely and fix the attention upon whatever is being done. This work must begin with the first steps in the pupil's school life, and be continued until it becomes a fixed habit. All the efforts of the school are a means to this end. Every conceivable plan of recitation should be adopted that will tend to hold the active attention of all the pupils of a class. Many primary teachers fail in their efforts by attempting to explain too much to a few pupils, while the bulk of the class are only giving passive attention, and often are absolutely idle and indifferent to what is being taught. Many a teacher has been heard to say, "Oh, if my pupils would only *give* me their attention, I could make them learn!" Would it not better express the honest fact to ask, "If I taught better would not my class attend to my teaching?" It is difficult work to give continuous, undivided attention, and the successful and wise teacher will never continue the strain longer than it can be secured by awakening a healthful interest in the subjects under consideration. James L. Hughes, Inspector of the Public Schools of Toronto, Canada, suggests the following excellent rules concerning questioning a class, having special reference to securing attention:

- "Do not ask questions in rotation."
- "Do not point to the pupil you wish to answer, while giving the question."
- "Do not even *look* fixedly at the pupil whom you wish to answer, while giving the question."
- "State questions to the class as a *whole*. Ask one member for the answer."
- "Do not wait an instant for the answer, when *reviewing* most subjects."
- "Do not look steadily at the pupil who is answering."
- "Do not *repeat* a question to oblige those who are inattentive."
- "Be sure to ask questions of those who are in the *slightest degree inattentive*."

Impart right principles, and lead your pupils to higher levels, to a nobler range of thought. Endeavor to accomplish all that skill, intelligence, and love can suggest.

A FLOWER.

Ah ! little rose, so soft and fair,
 Your tender life is just begun ;
 And with the dawn of morning's sun
 Your sweet heart flung upon the air ;
 A heart more sweet beneath your own
 Is beating to the dancer's tune,
 And girlhood's fancy, bright and fleet,
 Paints all its skies a cloudless June.
 Breathe, little rose, thy fragrant life ;
 Beat happy heart, and dearest eyes
 Gaze out into your wonder-world
 With girlhood radiant surprise ;
 To-morrow's sun shall see thy flower
 A faded, withered, scentless thing ;
 But the rose of youth in thee shall live
 And bloom in never-fading spring.

K. L. B.

THE ALPHABET OF NUMBER.

"The Little Folks' Alphabet of Number," by Miss Anna B. Badlam, of the Boston Training School, consists of a pasteboard box containing three packs of cards. One of these packs, about six inches square, contains the numbers from 1 to 50, printed in neat black type. The rest of the cards, perhaps two and a half inches square, have printed on them the numbers to fifty; also names of familiar objects. On the backs of the larger cards are questions suitable for the higher grades in the primary schools. As primary teachers, the smaller cards are of special interest. No directions for use come with the apparatus. This is well, for the ingenious teacher will invent her own methods. Evidently the "Alphabet" was designed for such teachers, not for mere servile copiers who are governed by books rather than by the best methods. We submit some of the methods that have been used in making the "Alphabet" of real benefit to teachers.

In the first place, it is designed to *accompany*, not to take the place of work with objects.

The class should become familiar with the ideas of the numbers, through 10. They should be taught the figures for expressing these ideas; also the combinations in addition, subtraction, multiplication, and division. What they need now is *drill* in these fundamental principles of arithmetic. Just here the "Alphabet" may prove of great benefit to both teacher and class. It is not necessary to wait until the pupils have reached "*ten*"; if this work is begun at "*five*," so much the better.

Methods.

(a) To familiarize the children with the figures as signs for the numbers.

Hold up the smaller cards before the class, and have them name the number which the figures represent. Ask the children to select cards bearing certain figures. Have one or two assort the cards, placing the *one's* in one pile, the *two's* in another, and so on; or, in little piles containing two

one's, three *one's*, etc. Ask each child to think of some object, and let the card represent to him how many of that kind there are.

(b) To drill on the various combinations.

Give each child a small card. Hold up a large card, and let each one add his number to the one you hold. For example, your card says *ten*; the first child, adding his number to yours, rises and says, "Ten and one are eleven," showing his card at the same time. Or, let the process be *subtraction* instead of addition. If multiplication, the children may be trained to work thus: Your card says *three*. Johnny holds up his number *two*, and says, "Two *three's* are six"; Alice says, "*Three three's* are nine." If division, and your number is ten, Johnny would say, as he has been trained in working with his blocks, "There are *five two's* in ten"; Alice, "There are *three three's* and one unit more in ten."

(c) Example-making.

This part of the work may begin before the children can read the printed words on the cards. It should begin while the little ones are working with objects. For example, the teacher takes five blocks, and says to the children, "A farmer has three horses in one field and two in another; how many horses has he in all?" The children will then perceive that the important question *why* will come. "Because three and two are five." By the time a class has been through the cards, the children will know a good deal about this work in using objects. Such examples as the following may be required: "If I have ten horses, and sell three of them, how many are left?" "If one orange costs four cents, what will three oranges cost?" "I have twelve chestnuts; I put them in four equal piles; how many in each pile?"

These are a few of the ways in which the "Alphabet of Number" may be used profitably. Everything depends upon the skill of the teacher. This is not an educational humbug, which advertises to teach children numbers by magic instead of by hard work. In the hands of the skillful teacher the "Alphabet of Number" becomes of great service. It is useless in the hands of a teacher who hopes to accomplish through it the desired results without patient drill. Miss Badlam is not only to be commended for the work itself, but for her faith in the ability and intention of her fellow-teachers, which this significant fact shows.

ONE WHO HAS TRIED IT.

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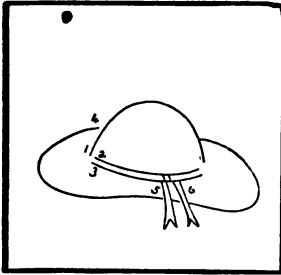
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THE

PRIMARY TEACHER,

A Monthly Magazine,

DEVOTED TO THE

Interests of Primary Instruction in America.

WM. E. SHELDON, EDITOR.

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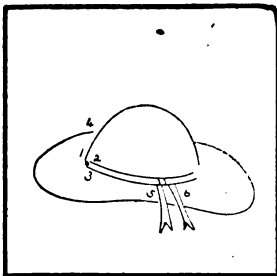
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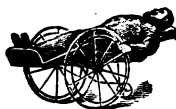
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PRIMARY CLASS IN PHYSICS.

BY MRS. LOUISA P. HOPKINS.

III.

Teacher.—Let us see what we know of the forces of water, and how they may be used. If I put water in this cup and now punch a hole in the bottom, what happens?

Holly.—The water runs out.

Teacher.—Now I will punch a hole in the side.

Prescott.—The water runs out there, too.

Teacher.—Now this tea-pot is full of water, but I am pouring in more.

Lottie.—It is running out of the spout, and over the top.

Teacher.—And the spout is as high as the top, so the water is pushing up as high as the top. Which way does water push, then?

Lily.—It pushes every way.

Teacher.—If I put this book in the empty pitcher, does it change the shape of the book?

Madge.—No.

Teacher.—Here is some water in this cup; what shape is the water?

Teddy.—It is the shape of the cup.

Teacher.—Suppose it were in a square box, what shape would it be?

Prescott.—Water will be the shape of what it is in, of course.

Teacher.—Now, if I put the water that is in the cup into the pitcher, will it change its shape?

All.—It will.

Teacher.—The water spreads itself every way, then, and changes its shape, and a solid thing does not.

Madge.—Why does it?

Teacher.—I cannot explain it more than to say that the particles of a solid thing hold together more strongly than they push apart, but the particles of water push apart as easily as they hold together. And how

is it with air? Does that push apart more easily or hold more firmly together than water?

Teddy.—It pushes apart more easily.

Teacher.—Yes, it fills everything, no matter what its shape, or how large. Its particles separate as far as they can from each other. Now, as to water,—you all have faucets in your house; where does the water that runs from them start?

Prescott.—I know; from the Reservoir, and it is pumped there from a pond further off. It runs through pipes in the streets and houses.

Teacher.—Have you ever known whether the Reservoir is built up high, or dug down deep?

Lily.—My uncle planned it, and it is a high building.

Teacher.—It has to be high. I will show you with this bent glass tube. I dip this end in the water, and now look and tell me how high it comes up in the other side of the tube.

Holly.—Nearly as high as the top of the cup.

Teacher.—Water will run as high, and no higher than it was where it started. Now some of the houses in town are up on a hill, and high; so in order that the water shall run into their pipes, it must start as high as they are, and the reservoir was built as high as that.

Prescott.—At Teddy's they have a tank up in the attic; I thought that was so that the water would run down the pipes.

Teacher.—That was put there before the water from the Acushnet reservoir was brought in pipes, and it was arranged to be filled by the spout from the roof, I suppose. Do you use it now, Teddy?

Teddy.—No, only to sail boats in it and wade in it. Prescott got up to his knees in it, the other day.

Teacher.—Yes, I remember it very well. He had to pull his boat along by a string, as he couldn't use the force of the water to push it. How do you get your boat along in the river?

Madge.—We row it.

Teacher.—What force of the water do you use?

Holly.—The oar pushes against the water, and the water pushes back on the oar.

Teacher.—Which has to push the harder?

Lily.—The water.

Prescott.—No, the oar.

Madge.—Why, one has to push just as hard as the other.

Teacher.—Right; and that brings the boat up to the oar when the rower leans back. Now, all make believe row, and think how it is. See: you depend on the pushing or resisting force of the water against the oar, and the force of the man's arm to oppose it. Once they had boats with three tiers of oars,—ships with a large number of rowers.

Holly. — I know it. That was like the Grecian ships, and the ships of Xerxes, the triremes.

Teacher. — How does the "Martha's Vineyard" go?

Lily. — It goes by steam.

Teacher. — The steam alone wouldn't make it go.

Prescott. — The side-wheels make it go.

Madge. — The steam turns the wheels.

Teacher. — Who has observed the wheels?

Ethel. — They are like a good many oars moving, when the wheel turns round.

Teacher. — Yes, you must notice that when you go off in her, this summer. How is it with the propeller? Who knows? What does the steam do to make it go?

Maggie. — It turns a screw of four great curved scullers, at the end of the boat, in the water, and the Nonquitt boat goes in the same way. My father showed me about it, as we came up to town, one day. How does a ship go? What moves it, Mrs. Hopkins?

Teacher. — You know what the sails are for. The water does not make it go, it only retards it; the wind must push harder on its sails than the water against its hull, or it will stand still, unless it gets into a current of moving water, when it will move with the tide. There are hundreds of ways in which the pushing-force of water is used; wheels of factories are turned, and all sorts of contrivances and inventions are used to make the most of it, to get all the advantage possible from it. But here is something else. This towel has one end only in the water; this sponge touches the wet table only on its under side; does all the rest of it remain dry?

Class. — Oh, no; the sponge is wet all over now, and the towel is growing wet.

Teacher. — The other morning I found the floor near my sink was quite wet, and then I discovered the towel thrown over with one end in the basin where there was some water, and the other end dripping over the edge of the sink. How was that?

Teddy. — The towel and the sponge suck up the water.

Teacher. — The water climbs by little threads, or through little holes or tubes; it creeps up the sides, and fills the pores of the sponge, the web of the cloth, the cells of the plants and trees, in which the sap rises and oozes through the thin membranes. It climbs up a chain, too, in the same way; sometimes very fast.

Madge. — I know it does in our chain-pump. I draw the chain up, and soon the water comes so fast that it comes out of the spout, and I hold my face over and drink.

Teacher. — Now, you can often get this climbing-force of the water,

its disposition to follow a fine thread or tube, its *capillary attraction* as it is called, to help do something important. Keep it in mind, — you may want to use it. If you were very thirsty, and saw a deep well but nothing to draw with, could you contrive some way to get a drink?

Lily. — I could. I'd tear my dress up and make a long string, and suck up some water out of it when one end was down in the well.

Teacher. — Before the next lesson, I want you to think of some other forces of water, and how they are used. Perhaps you can discover or invent something.

Holly. — Do you believe we can?

Teacher. — I have no doubt you can, if you watch and think. Most likely it will be something that has been discovered or invented by somebody else, but that is no matter. It is just as good for you to find it out yourself, as if no one else had done it.

JULIA'S PERFECT REPORTS.

BY MRS. SARAH M. WYMAN.

The school-house stood on the verge of a forest, where the oaks stretched out their ice-coated arms, and graceful evergreens hung over the snow-clad briars and sumachs that bordered the wood.

Ruth Hayden was "snow-bound" for a moment in the glory of a winter morning. "Isn't it beautiful!" she said to one of the "big girls" standing in the school-house door.

"Yes; but it's awful going," was the reply.

A big boy, with big boots, big coat, and a slouched hat crowded by her, and entered the house, whistling "Nancy Lee."

It was Friday morning, — the week had been full of perplexity. Ruth was thinking and planning about school the first part of the night, and woke with a dull headache, — took as panacea, a cup of strong tea, and hastened along the snowy street to her daily work, — teacher of a district school in Hatfield.

She laid her hand gently on the arm of the "big girl," as she passed into the school-house, — into the noise and uproar and confusion, — into the rapid successions of cold and stifling heat, — into the elixir of human thought, and the acme of stolid indifference. She stepped to the desk, and nervously rung the little silver bell she had brought from her pleasant home in a neighboring town; at the thought of

dear faces around that quiet fireside, an involuntary sigh escaped her.

"Teacher feels cross this morning," said Martha Dix, a bonnie lass of sixteen, who was utterly unable to appreciate the difference between a sigh and a frown.

Soon the school, in an orderly manner, were reading alternately from the word of God.

A teacher's feelings are contagious ; her very manner is a silent signal, either for co-operation, or hidden warfare. Soon the heat of the poorly-ventilated room was almost suffocating to Ruth. Her headache increased. She was becoming restless, irritable. The school was restless, noisy, idle, — or at least, it seemed so to Ruth. This was the close of her third week in a location where there was little culture at home, consequently little in school. But Ruth had correct views of teaching, was gentle and affectionate, and was overcoming every obstacle in the way of an unusually profitable term of school. Sometimes she had thought so, but this morning "every thing went wrong," as she afterward expressed it.

The fourth class were standing in a line, as was their custom during the reading exercise. Julia Ross, a little Southern girl, spending the winter at the North, playfully turned round to the girl behind her, and thus fell back from the line.

"Go to the foot of your class, and lose a merit from your weekly report," hastily said the teacher. When she saw the golden curls quivering with the grief of the sobbing child, she would have given every dollar she had earned in school, to have re-instated Julia at the head of her class.

Still the tumult went on, and when James Gleason, a leader among the boys and one whose good will Ruth had constantly sought to conciliate, in a manner more rough and noisy than usual, strode toward her, and abruptly asked, "May I go out?" in a defiant attitude, she replied, "Take your seat, James." The misfortunes of the day reached their climax when, at recess, as Ruth was standing before the open door to get a little of the fresh air from without, she saw James Gleason aim a snow-ball at her head, which, however, fortunately fell a few inches from her feet.

"I'm going home," he shouted, "without leave or license," and walked off along the half-trodden highway.

Ruth's white lips quivered. "Nothing before like this," she murmured. Recess ended, the few remaining classes were hurried through, the weekly reports distributed, and school dismissed. Ruth leaned her head heavily upon her hand, saying to herself, "Can I endure another day like this?"

"Does your head ache, teacher?" 'Twas little Julia, with soft blue eyes, who stood beside her.

"Yes, dear, my head aches."

"Sometimes I have an awful headache," said the child, thoughtfully, and the blue eyes were fixed upon the opposite wall. At length she slowly says, "Next week I'm bound to have a perfect report; teacher, I'm going to *pray* for it."

Ruth drew the child to her and was about to reply, when some one shouted from the entry, "John's waiting for you, Julia!" and she bounded away.

"What a lesson for me, with my wavering faith!" thought Ruth, as she went slowly homeward. Excusing herself early, on the plea of headache, in her own room she reviewed the weary day, in which, like a guiding-star, were the words of little Julia. We will not attempt to look into the sanctuary of holy resolve; the results, we cannot omit.

The first opportunity, on Monday, Ruth called Julia to her and said, "My dear, you know I had a headache Friday; I felt irritable, and spoke very hastily to you when I sent you to the foot of the class. I'm sorry for it."

"Oh, I was off the line, and ought to go to the foot;" and the soft arms were around the neck of the teacher, and her face embowered in the golden curls.

James Gleason came into school in a sheepish way, and sat moody, casting sinister glances at the teacher. He evidently had expected a scene at once. Ruth's *modus operandi* was new to him.

"Will you wait a moment, and take this gazetteer home for me, James? There are some things I want to find in it, this evening." Ruth said this as James was passing her desk on his way out, at night; but she continued looking in the book until all the other scholars had gone; then quietly closing it, she said, "Thank you for waiting, James, and I want to speak to you about Friday. You remember you asked me to go out; I was not well and felt irritable, and answered you very rudely. I hope you'll forgive me, James,—I'm so sorry; I always thought so much of you!"

"Oh, that's no matter,—that's all right," said the boy, amazed at the turn the affair had taken. He took the book, passed on a step or two, then stopping, turned round suddenly and said, "Guess I'd better 'pologize for what I did." We'll not stop to repeat what followed. Ruth was equal to the occasion, as every teacher will be who is fortified in a similar way. When James left the school-house, his brown cheeks bore traces of recent tears, and he was saying to himself, "She's a boss teacher any way; you won't catch me to throw another snow-ball, nor do anything she don't want me to."

There were no more sobbing Julias that winter,—no more defiant glances among the "big boys"; but when, at the close of the "last day,"

James Gleason came forward, and after making a tender little speech in his uncouth way, presented her in behalf of the school with an illustrated copy of Whittier's "Snow Bound," in attempting to reply Ruth fairly "broke down," and soon the whole school were in tears.

The farewells were touchingly sad, in that red school-house by the side of the wood, and when the

"Winter sun
Shone over it at setting,—
Lit up its western window-panes,
And low eaves' icy fretting,"

Ruth heard the silvery tones of little Julia's voice, "I've got six perfect reports to carry home to my papa."

DISCIPLINE: ITS PRINCIPLES AND METHODS.

BY MISS L. D. PHILLIPS.

IV.

Right teaching will do much to keep scholars in a good state of discipline. Furnish useful employment, and they will not be disposed to mischief.

Education being the power to think, the power to act what the pupils need is not information only, but awakening, — the development of all the faculties of their natures which shall make of them well-developed symmetrical men and women. By judicious questioning, children may be led to discover information for themselves and from their own conclusions. Thus thought is stimulated, and the reasoning powers cultivated. The instructor must be well acquainted with the whole subject he is to teach, and the order in which he is to present it. He must study the human mind, notice its workings, and the order in which the faculties develop themselves.

Nothing has been said about corporal punishment, and while wise educators and interested citizens are discussing this problem, what can be said. Yet we are all questioning what share in discipline it should have. Perhaps *some* of us could *sometimes* say with Fowler's Hoosier Schoolmaster, "*Moral suasion* is my theory, but *licking* is my practice." Facts tell more than theories. What may be done in one school may not be done in another. Three years' works among boys and girls of the very lowest class, whose nearest relations regularly filed into the police court-room on Monday morning, convinced me there were cases

to be reached by the rod. On the other hand, many of the worst in time yielded to personal interest and sympathy, and in return showed an affection for the teacher deeper and more lasting than ever is shown by children from happier homes. In later work among the more favored ones, I find corporal punishment unnecessary. However, a judicious application of a stick seems to me not so barbarous as means of torture, both physical and mental, devised by many who scorn to resort to corporal punishment.

Now when the teacher examines the nature of the field which he has to cultivate, when he studies the laws of human nature and the characters of those minds upon which he has to act, when he exercises skill and ingenuity in applying means adapted to the end he wishes to accomplish, he must necessarily take a strong interest in his work; and we know, as is the teacher so is the school. He cannot fail to infuse into his school the same energy. A wide-awake teacher, who is not afraid to work, makes wide-awake, industrious children. He must not hope to bring out all pupils alike. He must bring out those powers with which the minds of his pupils are supplied. It is the teacher's province to cultivate, though it is sometimes expected he will create. He must not look, too soon, for results, but with diligence so instruct and discipline the minds of those under his care that they will become exemplary and useful citizens. Above all, wear a cheerful face. The moral influence of a teacher is lost by frowning and fretting.

"O'er wayward childhood, wouldst thou hold firm rule,
And sun thee in the light of happy faces?
Love, hope, and patience, these must be thy graces,
And in thine own heart let them first keep school."

ZOOLOGY FOR THE LITTLE ONES.

BY CLARABELLE GILMAN.

X.

THE CLAM.

We spend a little time on our large Ipswich clams, while they are alive, and learn how the siphon works, and that the clam draws his shell closely together when it is touched. They are then killed by being kept for some hours in warm water, and, after the shells have been partly opened by cutting the muscles, they are ready for our lesson.

We first study the shell, and we find that it is composed of two parts, called valves, of equal size and alike in shape. The word valve is put on the blackboard for the children to copy. Then we inquire for the shape of the valves, and discover that they are rounded outward on the lower edge, but much straighter on the upper, where they meet near the centre in a rounded point, as the children call it. The word convex is given to describe the edge that rounds outward, and the rounded point is named the beak. We find, also, that the end from which the siphon protrudes is narrower than the other.

A point of great interest to the scholars is the finding of the right and left valves. To do this, we hold the clam in his natural position, with the beak uppermost, and the narrow or siphon end pointing towards us, when the right valve is on our own right side, and the left valve on our left. Asking for the color, we learn that some are white, while from others we can scrape off a brownish substance, which is a sort of skin.

"What holds the valves of the shell together?"

"A hinge at the beak."

"I have here a shell that has not been partly opened, as yours have, but that I am going to open now. You will need to watch me very closely. I must put my knife in carefully under the narrow end of the shell and gently push away the soft skin, drawing the knife up slowly toward the beak. Here I come to something hard, that seems to be fast to the shell. See what happens, as I cut it. What is it, Alice?"

"The shell came apart a little at that end just as soon as you cut it."

"Now watch while I draw the knife around from the narrow end to the broad end, keeping it just inside the convex edge of the shell. Here at the broad end I find something to cut. Now what happens?"

"The shell comes apart all around, except at the beak."

"What are those things that I cut, Bessie?"

"They are muscles."

"What did the muscles have to do, Fred?"

"They held the valves together."

"Why didn't they keep the valve close together, as they did in the live clam when we tried to open his shell?"

"Because the clam is dead, and they are dead, too."

The children are now allowed to stand, and by bending their arms forcibly several times, they learn how muscles, whether in human beings or clams, act by contraction.

"You may now all lay the clams on their right side in the dishes, and, lifting the left valve, twist the hinge if it does not break easily. What do you see on the inside of the hinge?"

"A little shell, with something brownish on it."

"The little shell is the tooth, and the brownish substance is the

ligament. This ligament, when wet, is elastic like rubber. When the valves are closed, it is pressed till it is as small as possible ; so when the valves open, it flies out and helps push the valves apart."

The action of the ligament can be illustrated with a piece of rubber, or of whalebone.

"How many marks can you find on the inside of the shell?"

"There is one at the broad end, and one at the narrow end."

"Lay the valve back over the body of the clam, and see what those marks cover."

"They cover the two muscles."

"Then we may be sure that they were made by those muscles."

In the same way we find that the pallial line passing around the inside of the shell near the convex edge, is made by the muscular border of the mantle, as it is called. The mantle of the clam, however, is much more like a bag than a cloak. It is a layer of skin which covers him entirely, thin and delicate over the body, but much thickened along the united edges. The mantle border is a hard worker, busily putting on new layers of shell around the edge. We trace the concentric lines that mark the edges of those layers, back toward the beak, and then, reversing the process, see how the clam was grown to its present size.

"Won't you tell us what this long, black thing is that the clam draws in so fast, when you touch him?"

"Perhaps some of you have heard it called the head, but it is not a real head, for the clam has none. It is the siphon. Now try to find a little furrow in the mantle along the lower edge. Have you found it? Then cut through it very carefully from the siphon to the forward end of the shell. Lift the border of the mantle as I do, and be careful not to cut anything else. Now lay the mantle back. What do you see?"

"Two lovely little layers of skin."

"Those are the gills. On the other side of the clam's body are two more gills. If we should put these gills under a microscope, we should find them covered with a thick, soft coat of hairs, like the pile on velvet, that are always moving. This velvet coat is the outside of a fine sieve that strains all the coarse particles out of the water before it enters the gills. But let us see how the water goes there. Take your probes, and see if the siphon is all one tube, or if it is two tubes joined together."

"I can put my probe into two holes." "My probe goes through the tube, into the clam." "What are these teeth for, round the end of the siphon?"

"Those are not teeth, but a very sensitive fringe that is always bent over the lower opening of the siphon, so that nothing may go in that could choke it up. We might call this the coarse strainer, and the coating of the gills the fine one. Those tiny, waving hairs on the gills

suck the water down through the large, lower tube of the siphon. When the clam is alive in the ocean, his body has so much water in it that it fills up all this open space that we now see inside the mantle. So the water that is drawn in at the siphon can't go anywhere except into the gills. The clam breathes with his gills, instead of with lungs. He cannot breathe pure air as we do, but only air dissolved in water. When the water passes through the gills, the air that is in it goes into all the tiny blood-vessels, and makes the blood pure.

"But those waving hairs that I spoke of have something more to do. In the water are a great many little plants and animals which are food for the clam. These are drawn into threads by the hairs on the gills, and the threads are carried down to a channel on the lower edge of each gill, along which they pass forward to the mouth. But where is the mouth? Just behind the large front muscle, look for two pairs of little flaps. Between these is the mouth. Lift the flaps, and put the probe into the mouth.

"After the water has given up the air to the blood-vessels, and the food to the mouth, it passes into this hollow space at the top of the gills, and then out through the upper tube of the siphon."

A little indigo dissolved in *salt water*, and dropped from a glass tube on the surface of the gills, will be seen to form threads that are conveyed toward the mouth, thus showing the course of food-particles. This experiment may be tried with the fresh-water clam, and the existence of the two currents, into and out of the siphon, easily proved. The indigo, if dropped into the water just over the siphonal openings, will be sucked into the lower one, and thrown off from the upper. A much more complete description of this circulation than can be attempted here, however, may be found in No. VI. of the *Science Guides*.

We next find the curious little lump of muscle called the foot, which the children quickly see, because there is but one, and it is so different from anything else. We speak of the clam's habit of burrowing in the mud by means of his foot, and understand why he needs such a long siphon to reach to the surface for supplies of water, while he is snugly hidden in his hole. We notice the large muscles for drawing in the siphon, and that these have left their impression on the shell, as well as the others that we have spoken of.

Taking the mantle entirely off from the left side of the clam, we find the heart lying just below the beak, looking like a little bag, with the intestine running through it. The last thing to be found, and perhaps the most interesting of all to the children, is the crystalline stylet. This little cylinder may usually be brought to light by probing or cutting the thick part of the clam's body near its lower edge. The little ones manifest the greatest wonder at the sight of it, and are really disappointed when told that no one is sure of its use.

BOTANY FOR "LITTLE PEOPLE."

BY MARION.

I.

Teachers who wish to interest little children in this branch of study will find it helpful to give them a few hints on the subject in an introductory talk. Probably they already know that there are three great kingdoms, and a few words can be added concerning the special characteristics of the vegetable kingdom. They will be eager to tell you much about plants, and if their conversation is directed a little, a very good foundation to further study can be laid. Draw from them the names of the various parts which make up the plant. Illustration may be taken from the window-plants, probably to be found in all primary school-rooms.

Having thus brought the subject before your scholars in a general way, much may be done to win their attention to future lessons by allowing them to supply you with materials for study. Very probably *leaves* would be selected as the subject of the first few lessons, and children can be encouraged to bring in different varieties.

Suppose each one, now, with a pile of green before him; and let us see what can be drawn from the children themselves, for thus will the interest be sustained. Ask them the parts of a leaf, and see if any have found those having the little appendages on the stem. It might be well to introduce the regular terms at once; *i. e.*, blade, petiole, and stipules. Teach them to observe the general outline, the peculiarities of apex, base, and margin. For the description of these subjects, the botanical names will be found hard for the little minds to retain, but the scholars will be ready to give simple and suggestive terms. Ask them to examine the surface of a leaf, to see if it is the same on the upper and under sides. The texture, and even the color, may be discussed with profit. Perhaps some little one has already held a leaf to the light. Request all to do this, and let them describe what can thus be seen that had not been noticed before. Explain the use of the veins, and dwell particularly upon the arrangement, netted or parallel. Tell them in what flowers they may expect the one and the other, — as the parallel venation in the Lily family. Ask them to examine the plants they know, with this point in view. Any plan which will lead them to observe for themselves will tend to fix facts in their minds.

One boy has perhaps noticed that some leaves have, besides the midrib, other strong veins, and that around such there is an irregularity of outline, as if the leaf were trying to divide. By this you can easily

lead them from simple to compound leaves, where such a division is actually carried out. The leaves they have collected may here be arranged in piles in reference to this point.

If by pictures or by real plants you can illustrate the odd shapes leaves sometimes take, as in the pitcher-plant and fly-traps, you will immediately arouse the wonder of each one. They would probably give close attention to an explanation of how insects enter the plants, how they are imprisoned, and of their use as nourishment. Have some leaves brought you attached to the stems, that you may show the arrangement, opposite or alternate.

In all cases scholars should be encouraged to draw leaves illustrating the different things they have learned; and if they write easily, an outline might be arranged for them to fill out, as:

Shape—oval.	Apex—pointed.
Texture—thin.	Base—rounded.
Surface—smooth.	Margin—even.

The subjects suggested here would probably form the basis of several lessons, which will be a good preparation for flower-study.

LANGUAGE NUMBER LESSONS.

BY ANNA B. BADLAM.

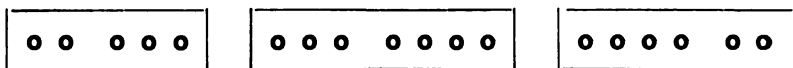
III.

Not only should it be our aim to make the work with objects varied and interesting, but we must hold in mind the fact that the different groupings must be presented frequently and repeatedly, in order that the child may hold a clear mental picture of the result, when any two groups are added, or when one group is taken from another.

It is useless to expect a child to remember the result of $3 + 5 =$, or $8 - 5 =$, abstractly, unless he has performed the operation often enough with objects to have the expression (verbal or written) suggest the result he has always obtained when working with the varied objects.

A very simple arrangement may be made from sheets of smooth brown paper, glued firmly together across the top, and still further strengthened by a binding of linen: thus forming a very good chart on which to arrange groups of the varied geometric forms, cut from colored papers, to be used for general reference and review.

For example : the page of 5 objects might consist of 1-inch squares cut from red paper and arranged thus :
 reading across the page ; while it may be used either for addition or subtraction ; if for the latter, by simply covering the group to be taken from 5. While for distribution among the children, colored wafers may be used on small cards, thus :



the child to tell the number of wafers, on the card he holds ; and the two groups which make it, or what is left if one group is taken away. The same idea may be followed out by taking the illustrations from old Primary Arithmetics, which are usually such as will interest children, and which will furnish good topics for the stories.

A skillful question will often draw forth a very pretty little answer, though at first we need not feel surprised if we are told simply that "3 chicks and 4 chicks are 7 chicks ;" but suggest that one group found a worm, "then what would the other little chicks do?" and we get an interesting story ; while the other children, taking the idea, enlarge upon what they see upon their cards.

A simple method of testing the children's conception of any two numbers, either to be added, or subtracted one from the other ; is to cover one side of the blackboard with such examples : $\frac{3}{2}$; $\frac{5}{2}$; $\frac{8}{3}$; $-\frac{9}{3}$; $-\frac{8}{6}$; $\frac{10}{7}$; the children to be allowed to choose the examples to which they can write the answer. The hands being raised : "Fred, what will you choose?" who answers, "3 and 6 are 9," going to the board and writing the result. "Katie?" who chooses 8 less 6, writing the answer in the proper place.

This is a good exercise in writing figures, astonishingly original ways of forming them having a chance of correction.

Or the children enjoy what they call "Lost Numbers," arranged on the board thus :

$$\begin{array}{ccc} 7 & 3 & 4 \\ \hline 10 & 5 & 10 \end{array} -$$

the children raising their hands when they can write a lost number.

"Katie, what have you found?"

"The number with 7 to make 10 ; it is 3."

"Yes, write it in its place. Molly?"

"I have found 2 to place with 3, to make 5."

The children seem to find something very enjoyable in this exercise ;

while if a mistake is made, the example is marked, and the child who failed sent to the table to find the result with objects.

Or we may vary a little from either of the above ways, by letting the children give rapidly little examples for you to write, with their answers, on the board; their delight reaching its height if they can give you enough to fill the board in a certain number of minutes.

OUR GREAT HOME.

[*Lessons Preparatory to the Study of Elementary Geography.*]

BY KATE L. BROWN, WAKEFIELD.

I.

First—Consider the known. Teach from what the children see about them. *Second*—Lead from the known to the unknown.

Aids.—Natural objects, pictures, stories.

I. *The Great, Round Ball on which we live.*

It is half past three of a bright spring afternoon. The pupils in Helen Russell's school have been busy with a long exercise in dictation. So, little eyes are tired, and the hands that have begun to grow weary from holding the pencil relax their grasp very readily at the signal for laying aside work. It is a winsome flock,—thirty girls and boys brimful of life and intelligence, with a ready appreciation of all that is good and helpful. Here are blue eyes and black eyes, fair curly heads and dark braids. Here is Harold the thinker, and Lulu the flyaway, Mabel the sturdy matter-of-fact child, and France the little romancer. Here is also the boy who can't keep still, and the girl who finds it hard to keep a sober face. Just a lovable, sometimes trying, yet ever appreciative little band, ready for anything new either in work or play. When all are quiet and attentive, Miss Russell says, "You may look out of the window, children, and tell me what you can see." Very soon the hands begin to flutter up. "Harold may tell."

Harold.—"I see a field across from the school-yard. The river runs through it, and just beyond is Chestnut Hill where Lulu lives."

Lulu's little hand has been waving to and fro, keeping time with her flossy curls. At the word she flies up from her seat anxious, to tell what she sees. "I see the river and the place where Willow Brook flows into it, and down, ever so far, is the sea."

T.—"Good, Lulu! You have used your eyes well. Do you see more, Daisy?"

Daisy.—"I see some pine woods, and clear 'way off is something like a cloud. Papa says that it is a mountain."

Just then Mabel raises her hand eagerly. "Oh! I see a little bit of blue water where they have been trimming off the trees; it must be Lily Pond."

Miss Russell writes at the children's dictation :

Fields,	}	What we can see from the school-room windows.
Woods,		
River,		
Brook,		
Mountain,		
Pond,		

T.—"How many of you have ever been on the top of Chestnut Hill?" "Do you see anything different from what you have seen here?"

Wilfred.—"Why, we can see the city, and everything else we have spoken of."

T.—"If we start and go toward the pine grove, shall we see anything like what we have seen here?"

Mollie.—"We can see the river and more fields and hills."

L.—"Did any of you ever go anywhere where you could not see fields, woods, hills, and water as you looked out?"

France.—"Why, there are fields and woods and hills near every place where I've ever been."

T.—"If you should go many miles, you would still see things very much like what you see here, only sometimes much more beautiful. And everywhere we go, we find homes, and people working, and little children having a good time. Only all the homes are not alike, and in some respects the children are not alike. This world where we live is one big home, and all the people in it are brothers and sisters, because God is the father of every one. Now, would it not be nice to learn something about these brothers and sisters of ours, and this home, only a part of which we know about now?" "Many of you have homes with names to them. Lulu's home is "Hill-top House;" Vivian's, "Cosy Corner," because it nestles so cosily under the hill; and Ralph's summer home at Magnolia is "Cliff Cottage." This big home of ours has a name; does any one know it?"

Fanny.—"I heard Isabel studying her geography to-day, in the library; and I heard her say something about the "earth as the home of man."

T.—"That is just what I want. We live on the *earth*, and we want to

learn all we can about it. We want to know what kind of a looking thing the earth is, and first, what form it has." "What kind of a body is this?" holding up a wooden ball.

"Spherical body," say the children, who have become quite familiar with its name and qualities through their daily lessons in form.

T.—"I will tell you something which will surprise some of you. Our earth is a spherical body, too."

Edith.—"Why, teacher, it looks flat."

"Yes! I know; but there is a reason for that. Our earth is so big that we can only see a little portion of it at a time. Edith, how does space between my two fingers look on this ball?"

Edith.—"It looks flat, almost."

T.—"Just so the little portion of space on the earth that we can see at once, looks flat. But our earth is not the only spherical body. I am thinking of one we see in the night, sometimes."

"The moon! the moon!" burst out the eager children. "The sun is a spherical body," says Bertram. "Last night, as it set, it looked like a big red ball in the west."

T.—"Yes, and there are many other spherical bodies moving around in the air. You will learn about some of them when you are a little older. This wonderful ball on which we live is not alike in all places; some of you must know that already. France, tell us about your old home in Canada."

France.—"It is very cold there in winter. We have great, great snow storms that last for days, and then everybody is drifted in. Papa says that up farther north it is colder still; and in some places it is cold all the year through."

T.—"In the place France last spoke of, we find ice and snow all the year round,—no grass, no flowers or trees,—nothing but cold, white snow and blue ice." How is it down in Florida,—Alice, do you remember?"

Alice.—"Oh, yes; I was only five when we went there. I know that it was very hot, and that we picked and ate oranges just as we do apples here. There were lots of alligators in the rivers; they looked like logs of old, dried wood, when they were perfectly still."

T.—"In some places we find high mountains. Some of you have been to the White Mountains, and know just how a mountainous country looks. In some places there is nothing but sand, just as far as the eye can reach. All these places are very wonderful, and we want to know something about them. But first, we want to know about what is right around us. How many of you would like to take a walk with me after school, and see what we can find?"

How the hands fly up! In a short time the company set out.

THE LITTLE BOY THAT KNEW.

BY L. J. B.

II.

HOW THE CHILDREN PLAYED AT JOHNNY'S PARTY.

Saturday afternoon was bright and pleasant. All the children who were Johnny's playmates at school were early at his father's house. Harry Carr was there, too. He was the son of the tall man who had talked with Miss Frost. Harry had been told by his father to try and remember what the children did, and tell all about it when he got home.

The first thing the children did was to go into Johnny's play-room and get out his playthings. Some of them rode his new rocking-horse; some of them played with his tin steamboat; some got his magnetic fish and put it into a bowl of water which Bridget brought in from the kitchen, and then whenever a little boy or girl took the small toy fish-rod and line, and let the steel hook down on the top of the water near the fish, it would swim up to the hook and get caught, because there was a little magnet in the fish's mouth, you know. And some went out in the yard to swing; and they played various games. But soon Johnny got out a big box full of blocks with which to build houses and bridges; and when they were playing with the blocks, one of the girls said:

"Why, Tommy! these blocks are not like ours; they are all different. See! not any two are alike."

This made all the children present look at the blocks. There were nearly a hundred of the blocks; and, sure enough! no two alike, because each block was of a different sort of wood from any other block. Then Johnny brought out another box of blocks, each one of which had on one side of it the bark of the tree from which it came; and there were dozens and dozens of these blocks. And every block of each box had on it, in black or red ink, the name of the wood it was made of. And the children who were not building with the blocks began to hold up blocks and ask the rest to guess what wood it was. Johnny could tell every one, of course; and many of the children learned very soon to know quite a number of different kinds of wood at sight, either of the blocks with bark on, or the blocks without the bark. In this play they learned to know things which may be very useful to the boys when they grow to be men.

There were hickory, bitternut, beach, several kinds of maple, several kinds of oak, wild-cherry and tame cherry, walnut, butternut, several kinds of pine, several kinds of cedar, basswood, whitewood, spruce,

birch, fir, hemlock, tamarack, poplar, peach, quince, several kinds of apple-tree wood, pear, dogwood, ironwood, sycamore, locust, chestnut of two or three kinds, sassafras, and dozens of other sorts of wood of trees and shrubs.

Very few of the children failed to learn how to know a number of kinds of wood of which they had known nothing before. And in trying to guess the kinds of wood, they told each other a good deal about what each kind was used for ; and they had so much fun with these blocks that they kept them in use all the afternoon.

Johnny got a table from the kitchen, and put it a little way out from the wall for a counter, so the children could play "keeping store." He put on the table a box of pasteboard coins, just like all the silver, and gold, and copper, and nickel real money which people use in this country. Then he put on the table and under the table half-a-dozen cigar-boxes and tin cans filled with white sand, and yellow sand, and dried beans, oats, dried peas, barley, wheat, and dried cherry-stones ; and he put on one end of the table his mother's kitchen scales, with its weights, which would weigh as high as five pounds ; and a little tin scoop, and a gill-cup, a pint-cup, and a quart-cup, borrowed from Bridget, and some empty cans in which customers could carry things.

And Rosa Reed, and Tommy Farr, and Charlie White formed themselves into the old and well-established firm of Reed, Farr & Co., family grocers, with little Pip Beardly for errand-boy ; they called him Pip, though his real name was Georgie, because was he the smallest boy of the kindergarten-room. And this grocery had a very large run of custom right off, and kept little Pip, with his toy delivery-wagon, going as lively as you please. The way those children weighed out sugar from the sand-boxes, and sold dried beans for coffee, and dried peas for spice, was just as natural as any real grocer you ever saw in your life. They had a good deal of trouble making change, and sometimes they made so much noise talking about it that Mrs. Bell looked in at them ; and they scattered some sand and grain on the floor ; but Mrs. Bell said that children could not be expected to play grocery without making some dirt ; it wouldn't be like a real grocery if the floor was kept too clean.

By-and-by Bessie Aster wanted to buy thirteen ounces of ground spice, at seven and a half cents an ounce, and she wanted the change out of a quarter-eagle of gold. The firm, and all the rest of them, got puzzled over this, and they said it wasn't fair. But Bessie said it was fair, because she saw her mother buy just that in a grocer's last week. Then they all agreed that nobody should make any more such hard bargains as that at this grocery, or else the firm would fail.

Johnny also got his mother's sewing-table, which had a yard marked

on one edge, with a half and quarter-yard, and inches and half-inches. On this table he put a dozen old newspapers, and some of the children got behind this table and started a dry-goods store, with a millinery department. Their firm was Reed, Wisner, & Hadley. Bertie Reed was the head of the firm, with Dora Wisner and Dick Hadley for his partners. They chose Bell Smith for cashier, and Jimmy Clark for parcel boy; and the yards and yards of silks and calico and sheetings and ribbons, feathers, and laces, and other goods they sold, and the money they took in, would have made them all rich, I am sure, only they put their money in the same box from which their customers took it out. Besides they sold their goods very cheap,—many things way below Boston or New York prices; and, too, as Bertie said, rent and taxes were awful,—he had heard his father say so.

Among Johnny's toys was a real steam-engine, that would go when you lit a little lamp under it, and it had threads for bands which ran over little wheels, and made a pasteboard shoemaker and a wood sawyer and other images work as though they were in a great hurry. And there were a few other mechanical toys, that wound up with a key to make them go; but not many, for Johnny's father was not a rich man.

Johnny knew how the steam made his engine go, and how the springs and wheels of all the other toys went, because his father had explained every one of them to him very carefully; and Johnny was a great lover of machinery, and liked to study machines and find out all about their wheels and levers and bands, and other parts, and what each part did. And he told the other children all about his engine and mechanical toys; and how the noise was made by his top, which whistled just like a steamboat a long way off, when you set it spinning.

JOHNNY'S PICTURE-BOOKS.

Johnny got out all his picture-books for the children. Johnny had a good many picture-books, perhaps because his father was a newspaper editor; and newspaper men have a good many books sent to them by the men who make books. The books which Johnny liked best were books with pictures of animals, birds, beasts, insects, fishes, and reptiles. He liked very much books with colored pictures of animals, and he liked still better books which had pictures of the teeth, claws, and bones of the animals, along with the pictures of the animals. He had some nice books of this sort, which were sent to him from Boston by Mr. Prang, who makes the pretty chromo cards which good boys and girls get for Christmas and birthday presents. Johnny liked to know how the bones of animals were put together, and about their teeth, and claws, and feathers, and fins, and scales, and other parts. And the children, in looking at these books, set Johnny to talking about them.

So Johnny got his cat, Tom, and his dog, Rover, and told the children to look at the cat's feet and the dog's feet, and the canary bird's feet ; and they would see that the cat's feet and the dog's feet are not much like your feet, but are a good deal like your hands. A boy's foot has a big toe on the inside, and four toes which grow smaller and smaller down to the little toe on the outside. But the dog's foot and the cat's foot have a big finger in the middle, and each fore-foot has four fingers and a thumb, like your hand, only the thumb is smaller than the fingers. The canary bird has three fingers before and a long thumb behind. All their toes have joints like your fingers, and nails like yours ; only their nails are claws. The cat can pull in and push out his nails. They are sharp, so they can go into a rat's skin easy ; and crooked, so the rat cannot pull away. The dog's claws are short and round, and he cannot move them in and out. The dog's claws are for scratching in the dirt.

If you look at the cat's fore-feet, you will see that her toes are quite long, like fingers. Each toe, or finger, has a pad or cushion on its end, and there is a big cushion in the middle of the foot, so that he can walk softly.

If you watch your cat you will see that he can spread his toes much like opening you hand wide, with your fingers a little bent, when he goes to strike with his claws. Then he will shut up his fingers, much as you shut your hand, when he licks his paws. The dog cannot open and shut his paws like the cat. The fingers on the dog's paw are shorter for his size.

The cat's fore-leg is very much like your arm. He can scratch the back of his head with his fore paw. The dog cannot. The cat can strike sideways with his fore paw ; and he can reach back toward his tail with it. The dog cannot. So the cat's fore-leg is much like our arm ; while the dog's is only a leg.

The dog or cat have no thumbs on their hind feet, except sometimes a dog may have small ones, but hardly ever. Their backbones have many short joints like yours. But their teeth are not at all like yours.

Johnny showed all these things to the children. And he made Tom, the cat, open his mouth, so the children could see his two long teeth at the corners of his mouth, on his upper jaw, and two on his lower jaw, with small, sharp teeth between. On the sides of his jaws he had queer sharp-edged teeth that shut together like blades of a pair of scissors. And Johnny called them scissors-teeth. He made the children count each kind of teeth, which none of them had ever thought to do before.

The dog's teeth were different. His long teeth and sharp, round teeth were blunt, like his claws ; and his side teeth were not scissors-

teeth, but more like your side-teeth. Anybody who knows these things can tell, if he finds a skull, whether it is of a dog or a cat, by its teeth. Johnny said that wild cats and tigers and lions and panthers have cat's teeth and claws, while foxes and wolves and jackals have dog's teeth and claws.

Tom and Rover growled a little, because they did not like to have their mouths and feet pulled about by the children ; but they did not scratch or bite, because they were used to Johnny's doing such things.

The children all quit their other plays to listen to Johnny, and they were very much interested indeed. Most of them had never really seen a cat, or a dog, or a bird, though they had looked at them every day ; because there is a great difference between just looking at a thing and really seeing all of it. I am afraid that most people never really see the many things which they look at every day. But I think that when these children went home, they made their dogs and cats very unhappy for a few days, examining their claws and teeth, and joints, and eyes. For Johnny showed the children the strange difference between the cat's eyes, the dog's eyes, and the bird's eyes ; and how the quills and bills of birds, and the hoofs of a horse, and the horns of a cow, the scales of a fish, and the shell of a turtle, are like your nails ; but the shells of oysters and clams are like your bones. And the child had a great deal of fun over these things.

The books which Johnny liked best of all were some bound volumes of the *Scientific American*, with pictures of machines. All boys are not like Johnny, and many of the children did not care much for machine pictures. Johnny liked to know how things are made. And he showed his drawings of animals and machines. He loved to try and draw such things, and he could do it pretty well for such a very little boy. This is a good practice for boys and girls ; but they must not all expect to do it as well as Johnny, for it needs a great deal of patience and practice, and a liking for it, too, else a child will not learn to draw well ; but all children can learn to draw a few things they like. When anybody draws a thing he has to see it, and see it all, and see it exactly as it really is, or he cannot make a correct picture of it. So drawing teaches you to see things just as they really are.

— Speaking to the teacher diverts attention. "May I speak?" "May I get a drink?" "May I leave my seat?" No such questions should be permitted.

PRACTICAL LESSONS.

BY ALICE M. GUERNSEY.

II.—CIRCULATION.

Obtain, if possible, a microscope of sufficient power to show the red blood-corpuscles. Prick your finger, and place a drop of the blood upon the slide. (See Jean Macé for an interesting description of the "little red fishes in the blood.") Teach,—

1. Veins carry blood *to* the heart.
2. Arteries carry blood *from* the heart.
3. The blood is forced out of the heart by the contraction of its wall; this series of contractions and dilatations is called the beat of the heart. Illustrate by supposing a rubber bag, open at the top, and filled with water.
4. The beat of the heart is felt at the wrists and temples, and is known as the pulse. Its importance in disease.
5. Relative positions of veins and arteries.
6. Why is cutting an artery more dangerous than cutting a vein?
7. Application of ligatures; if an artery is severed, between the cut and the heart; if a vein, the other side of the cut.

Life may depend, one day, on the knowledge of this fact, which some boy or girl acquires in your school. Impress the lesson by rapid and varying questions: "What would you do if James cut his foot, and the blood came fast and in jerks?" "if he cut his arm, and the blood flowed in a steady stream?"

"If alone and severely wounded, or in an emergency, as a railroad accident, use the remedy which has saved many a life on the battlefield. Bind or hold a handful of dry earth upon the wound; elevate the part, and await surgical assistance."

These are things which every one should know; many must learn them in school, if at all. Even the children in the primary school are not too young to begin the work.

BEATTY'S PARLOR ORGANS.—In this issue we publish a large Organ Advertisement from the Hon. Daniel F. Beatty, the well-known organ maker of Washington, N. J. He now offers during the spring season a beautiful 17 Stop, 5 Set Golden-tongue Reed Parlor Organ for \$85. Those who visit his factory at Washington, N. J., and select instruments in person, he offers to deduct \$5 to pay the traveling expenses. Read the advertisement.

OUR NOTE-BOOK.

PERSEPHONE.

Listen ! What a sudden rustle	I can catch the crool and croaking
Fills the air !	Of a frog.
All the birds are in a bustle	Dogwood stars the slopes are studding,
Everywhere.	And I see
Such a ceaseless croon and twitter	Blooms upon the purple budding
Overhead !	Judas tree.
Such a flash of wings that glitter ;	Aspen tassels thick are dropping
Wide outspread !	All about,
Far away I hear a drumming,—	And the alder-leaves are cropping
Tap, tap, tap !	Broader out ;
Can the woodpecker be coming	Mouse-ear tufts the hawthorn sprinkle,
After sap ?	Edged with rose ;
Butterflies are hovering over	The park bed of periwinkle
(Swarms on swarms)	Fresher grows,
Yonder meadow-patch of clover,	Up and down are midges dancing
Like snow-storms.	On the grass ;
Through the vibrant air a-tingle	How their gauzy wings are glancing
Buzzingly	As they pass !
Throbs, and o'er me sails a single	What does all this haste and hurry
Bumblebee.	Mean, I pray,—
Lissom swayings made the willows	All this out-door flush and flurry
One bright sheen.	Seen to-day ?
Which the breeze puffs out in billows	This presaging stir and humming,
Foamy green.	Trill and call ?
From the marshy brook that's smoking	<i>Mean ?</i> It means that Spring is coming :
In the fog	That is all.

In nothing is the skill and tact of the teacher more needed than in the methods of questioning her class. Failure in this department of the primary teacher's work is fatal, so far as the intellectual instruction goes. Our want of space in the "Note Book" forbids that we should give specimen-lessons on interrogation. By means of questions a test is constantly applied as to the extent to which any subject taught the pupils is comprehended by them. The questions used by the teacher should be of two kinds, however,—those of examination and those of an explanatory nature. The latter class of questions should be used in order to lead young children by simple and easy steps to work out, in their own minds, the subject of the lesson for themselves. Such questioning stimulates the pupil to an active and healthy participation in the development of the topic. Pupils under such drill become colaborers with the teacher, instead of being *listless* hearers only of the teaching. It affords the teacher opportunities to supply facts unknown to the children, and lead them forward by a carefully-devised course of induction to the desired result, which should be the purpose of every lesson from the beginning. Questions of an examination-character can be used often at the commencement of a recitation, in order to ascertain what conceptions and knowledge the pupils already

possess of the lesson. They should be used frequently at the close of a recitation to ascertain how thoroughly they have understood what has been taught and how much of the instruction has been made permanently available for future use.

The following admirable rules are suggested by the managers of the Model Schools of London :

The questions and answers, when put together, should present the subject as a connected whole ; hence questions should follow each other in logical order.

Simple language should be used, such as will convey the meaning of the question clearly to the pupil's mind ; hence every question should be definite.

It is not wise to tell a *part* of the answer. such as the first word, or any other part of it.

Questions which require or admit a simple *yes* or *no* as an answer should be avoided.

The minds of *all* the class should be kept at work ; the answers should not be taken from a *few* only.

Wrong answers should be frequently noticed ; they point out *where* the teacher's attention is wanted. The class should be questioned into the right answer ; not told it.

Care should be taken to ascertain whether the answer given to a question shows a clear and distinct idea ; if not, further explanation should be given, and more questions put. A few ideas clearly and distinctly worked into the minds of the children are better than many misty and indistinct ones.

The *language* of the answers ought to be good ; inaccuracies should be pointed out, and answers which are only *partly* correct rectified.

The *Normal Teacher* supplies the following excellent directions for *young* teachers on the methods of questioning a class of children which we heartily indorse and commend to the attention of all inexperienced teachers :

1. "Remember that every question is a link in a chain, and it should be suggested by something which precedes or something which follows.

2. Compel yourself to invent your own questions, relying upon what *you* know of the subject to suggest them.

3. If you do not understand the subject well enough to ask your own questions, conscientiously review with this in view.

4. Ask your questions in the order of the development of the subject, so that the answers will be its complete evolution.

5. Thus form in yourself and in the pupils the habit of discussing a subject logically. This habit of thought is worth infinitely more than the knowledge of the subject.

6. When pursuing such a train of questions, occasionally ask your pupils what question you should ask next. Those who are really *following* the discussion will anticipate most of your questions.

7. Sometimes, after you have thus developed a train of thought, along the subject studied, by a connected series of questions call upon some bright pupil to ask the same series of questions to the class. This will test his mastery of the subject most thoroughly.

8. This connected questioning will excite the close and *continued* attention of your class. There is inspiration in it.

9. Never permit your class to answer in concert unless you give them the word, such as "Together!" When this or some equivalent sign is not given, they should understand that they must raise their hands, and no one is to reply until called upon. Enforce this strictly. *You* will be the careless one.

10. Rarely repeat the question a second time, and never repeat the answer after the pupil. Either of these practices breeds inattention.

11. Let your questions be mainly to individuals, rarely to the whole class.

12. Let concert recitations be mainly of the answers first given by a pupil. Thus by repetition fix in the minds of all what has been first recited by one.

The following from the late Dr. Barnas Sears shows his idea of the importance of the primary school :

"That which is to be the kernel, the germ of all future knowledge and discipline, should be made healthy and sound. The *first things* should be most cared for, because they give character to an interminable series proceeding from them. If education begins right, all is right; if it begins wrong, all is wrong. Therefore we would change the old adage, and say, 'All is well that begins well.'"

Editor of Primary Teacher :—What is the object and end of all education ?

The answer of past thought would be, "The acquisition of knowledge." But old symbols are fading away. The mind is no longer considered a great storehouse where precious bits may be laid away to become dust-covered, until there is occasion for their use. It is rather a toiling, living machine, like the body, receiving thoughts and impressions, digesting, assorting, casting out the useless and the bad if allowed to act freely, or growing weaker and more disorganized if hampered and restricted. Children are beginning to be looked upon as something more than receptacles into which knowledge may be poured or pounded. The teacher is now something more than "a winder-up" of young ideas. And with all these changes the world is beginning to demand something more as a result in education than the acquisition of knowledge. Different things are named, all parts of the same root, showing that men have begun to meet on one great general platform of truth.

We open an old blank-book, a souvenir of normal-school days, and in it find the following note gleaned from the teaching of one whose deep insight made him a prophet of good to his pupils :

"The end to be gained in all education is *self-control*. Self-control is acquired—

1. By cultivating a regard for the rights of others.
2. By cultivating good habits.
3. By the acquisition of knowledge."

The teacher of to-day must not only guide and direct the intellect of the child, but she must study those powers which awaken in him reverence, kindliness, love, and courage. Our thought was especially directed to this subject by Mrs. Wyman's admirable paper on "Courtesy," in the February number of THE TEACHER.

We are more responsible for the defects or failures of our pupils, as they pass from us, than we imagine. Every ambitious teacher will rightly be concerned as to whether her children have acquired intellectually what should be expected of them. But every true teacher will ask with even more solicitude, "Are my children more obedient, more courteous than when I found them? Do they keep their tempers better, are they any stronger in the encounters with temptation which they all have? Has this careless one learned in any sense to be orderly? Has this timid one gained confidence? Do we see better manners in the schoolroom? on the street? Do we have more truthfulness, more regard for others?" If these questions cannot be an-

swered to some extent in the affirmative, then the teacher must in all honor confess to failure, no matter how brilliant her examination,—no matter how well grounded her pupils are in their studies.

Let us take one point,—courtesy, for example. Some children will be invariably polite, and will show a tact that is surprising, in making others appear at their best advantage. But the majority of children are heedless. In many cases there is little or no training at home. Hence much devolves upon the teacher to correct and supplement.

Agnes Bernard, a young teacher of our acquaintance, is a lady who has developed in her to an unusual extent all the little graces of manner and character, which render her so popular among her pupils, both in and out of school. To illustrate something of her success, we cannot do better than relate several little incidents which came under our notice. Walter B——, a very uncouth and careless child, was being reprovved at home for certain things. His mother was preaching to him about the beauty of good manners, when he suddenly exclaimed: "I tell you who is the politest person I know: it's my teacher. She never forgets to say, 'I thank you.'" Two tiny mites were walking home from school one day, when they were met and spoken to by the chairman of the school committee. "Halloo, Mr. Piper!" said one. After Mr. Piper had passed, the other said, reprovingly, "Bessie, you must not say 'halloo' when you meet folks; it isn't pretty. Teacher says, 'How do you do'?"

Agnes Bernard did not regard the little points of etiquette as ends in themselves. Her courtesy sprang from a large and loving heart. By the perfect justice and sympathy of her dealings, she proved to her pupils that her thoughtful courtesy was not "put on." She did not preach to them about these things very often, but she lived so sweetly and truly before them, expecting so confidently the same in return, that her pupils were surprised into giving her the very best in their natures. She seemed to take it for granted that every one would naturally do the right, and this was another of the secrets of her success. Two boys were quarreling over the possession of a warm corner by the fire one cold morning before school. It seems that both had rushed for it at the same time, but one secured it first. The other questioned his claim, and there was much scowling and scolding. Agnes stepped up to the boys, and remarked, quietly: "Wilfred will be a *gentleman*, and Harry will keep the chair." In two seconds the seat was vacant. She did not bind her pupils to any fixed rules, but a few points were generally well understood, and it was expected that they would be carried out. No boy was allowed to enter the school-room with his hat on. "A gentleman always takes off his hat when entering a house, public hall, or church." Whenever a favor was done in the school-room it was always, "Thank you." Her pupils were expected to say "Thank you" whenever receiving or returning anything. If any awkwardness occurred, it was, "Excuse me"; if any favor was requested, "Will you please?"

There is, down in the depths of every child's heart, an appreciation for the finer things of life. Mike and Nora may be only little ragged, dirty Irish children, living in a wretched way in some alley or back street. But will they not appreciate the bright smile and courteous "Good-morning" of their re-

finest and graceful teacher as they meet her in the street or enter the school room? If a child is considerably and respectfully treated, it rouses in him self-respect. He feels, though dimly, perhaps, that there is something within him better than his dirt or rags, worthier than his pettiness and selfishness, which his teacher sees and respects. This was the great key-note of all of Jesus' teaching. He looked into man through all his vice and wretchedness, and saw there something pure and incorruptible, something divine and glorious. He taught man the essential worth and dignity of the nature God has given him. He led him to see that he possessed that "star in the soul" and man, enraptured with the sight, fell in love with virtue, and has ever since climbed the heights which lead to it.

Do we, as teachers, consider deeply enough the formation of habits for which we are responsible? Are we not *too busily engrossed* in bringing our pupils up to the proper average in arithmetic, geography, and grammar? Does not the cultivation of the truest graces of character often get pushed to the wall in our mad race after something of far less importance? It is important that our boys and girls be thoroughly versed in all the branches, but it is far more important that they should be sincere, respectful, obedient, and truth-loving. John may be an adept in mental calculations, but if he has not firm principle, that very quickness may lead him to rob his employers some day. Henry may have a fine gift at elocution, and may melt all hearts by his pathos, but if he is rough and disrespectful to his parents, or intensely selfish and overbearing, is not that glorious gift a mere mockery? A teacher who merely develops the intellect, without touching the moral nature and affecting the heart, is sowing seeds of incalculable mischief which in after-years may yield a harvest. Let us have all the mental training possible, but let us tremble if we do not proportionally awaken and develop the soul.

MARION THOMAS.

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A Monthly Magazine,

DEVOTED TO THE

Interests of Primary Instruction in America.

WM. E. SHELDON, EDITOR.

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THE PRIMARY TEACHER.

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HISTORY IN PRIMARY SCHOOLS.

BY JOHN J. ANDERSON, PH.D.

VII.

DE SOTO'S EXPEDITION.—(Concluded.)

We have seen how the Spaniards, with their horses, contrived to cross the Mississippi. Northward, along the west bank of the river for many miles, they marched, and then they turned to the west, looking for gold more than two hundred miles from the great stream. But while they found no gold they found Indian villages, and the poor natives were compelled to do whatever the Spaniards commanded. If they refused, their hands were cut off and their houses burned. In the spring of the next year De Soto descended a branch of the Red river, and again came to the Mississippi ; but what a change had taken place in his prospects ! Many of the men who, with light hearts and joyous hopes, had departed from Spain, were no more ; and fevers, exhaustion, and Indian arrows were every day busy thinning the ranks of the survivors. At last their great leader himself began to despair. His proud spirit was broken, a fever attacked him, and he died. His followers were overwhelmed with grief, for they had looked upon him as a father, and in all their misfortunes had never ceased to regard him with favor. Their first endeavor was to keep the knowledge of his death to themselves, for they were afraid that the Indians would find his body and hang it in pieces from the trees, as they had done with the bodies of the Spaniards. They were also afraid that the Indians, who had been

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impressed with a high opinion of De Soto's courage and power, on learning that he was dead, would be tempted to make a terrible attack upon them. So, at night, in silence and with many tears, they buried the body, destroying, as far as possible, all traces of the grave. Yet, notwithstanding all their precautions, the secret in some way, it was thought, became known; for they observed that whenever any Indians approached the spot "they would stop, look about on all sides, talk with one another, and make signs with their chins and eyes toward the place where the body was interred." The Spaniards watched the grave day and night; but as they could not remain there many days, it was determined to give the body a more secure burial. Accordingly, in the darkness of night and in silence it was taken out of the ground, put into a canoe, conveyed to the deepest part of the Mississippi, and there sunk to the bottom of the stream.

What was next to be done? De Soto, a few hours before his death, had appointed a person to succeed him in the command, and this man, whose name was Moscoso, now called his officers together for the purpose of getting their advice. The result was just what might have been expected. All the Spaniards wanted to get out of the country and back to Spain, and their plan of escape was soon decided upon. Instead, however, of following the great river to its mouth, they resolved to march westward through the forests until they came to Mexico. Mexico, you will remember, had been conquered by Cortez about twenty years before, and was consequently at the time in the possession of the Spanish king. Under their new commander, the wanderers then set out. For weeks and even months they marched. They came to rivers, and had to swim or wade across. They came to prairies which were no better than deserts. They were almost starved, and had to live upon herbs or roots. They went from place to place, often meeting and fighting the Indians, and often deceived by the idle stories told by their poor captives. In the west they saw high mountains, and then their hearts began to fail. At last Moscoso called his officers about him a second time for their advice. Some said, "Let us go on"; but the majority decided in favor of going back to the Mississippi. Then they began to retrace their steps, but the Indians through whose country they had marched, and whom they had treated with terrible cruelty, suddenly appeared from time to time, discharged their arrows at their enemies, and then quickly fled. Thus more than forty Spaniards, besides several horses, were killed before the party succeeded in reaching the river once more.

The river reached, what were the hunted and discouraged Spaniards to do? What could they do? They deliberated, and then resolved to

build some large boats, and in them descend the stream to its mouth. It was easier to resolve than to perform, but they knew that if they did not get away they would all soon fall victims to fevers or arrows. Their first business was to make a fire. This may seem a very easy matter to us who have matches, but in those days there was no matches, and their ordinary means of getting a fire were all gone. At last, with the aid of an Indian, a fire was secured. Then the chains that were on the legs of their slaves, all of whom were Indians, were taken off; and these, with the iron shot and stirrups, and every scarp of iron among them, were made into tools and nails. Fortunately they had a large saw which they had always carried, and with it they managed to cut out planks and other timber. With such poor tools as they had been able to make, the workmen did the best they could. After the boats were framed and the planks nailed on, they gathered a large quantity of a kind of weed that resembles hemp; and with this they calked the seams. Instead of tar, which they could not get, they used the gum of various trees mixed with earth. Barrels for holding water were made, the last of the swine were killed, also the poorest of the horses, the flesh being dried in the sun.

At last seven brigantines, very frail and with no decks, were launched; and in these the Spaniards, with the few horses that remained and some captives, floated down the river. Still the Indians gave them no rest night or day. From their canoes the red men shot their arrows, and also whenever the fugitives made a landing. At the end of seventeen days, when the Gulf of Mexico was reached, most of the Spaniards were suffering from wounds, all were worn out with fatigue, and every horse had been killed by the hosts of pursuers.

After resting several days on one of the islands at the mouth of the Mississippi, and again encountering the Indians in battle, they put off, following the coast in a westerly direction, and, in fifty days more, came to the mouth of the Panuco river in Mexico. Here, at last, the poor wanderers, now reduced in number to less than half of the proud and hopeful expedition that landed in Florida four years before, found rest, for here they were among their countrymen (1543).

— The withered leaf is not dead and lost. There are forces in it and around it, though working in inverse order, else how could it rot? Despise not the rag from which paper is made, or the litter from which the earth makes corn. — *Carlyle*.

PROGRESSIVE STEPS IN THE STUDY OF MUSIC.

BY W. S. TILDEN.

VII.

In the last paper the theory of the French time-names was given; and what was there said belongs largely to the department of "philosophy of processes." The skillful teacher will understand that it is the process itself that is to be presented to pupils rather than the reasons therefor.

The pupils have learned to discern the two kinds of measure by the means described in a previous number (V.); this is all the preparation needed for the present lessons. The business now before the class is "learning the time-names"; applying them in such a way that their design may be realized. How shall we proceed?

Without any preliminary explanations, the teacher makes a series of taps with the head of his pencil upon the desk, a little slower than the beating of the pulse, in even time, and accented for two-beat measure. He then sings the syllables of *Ex. 1* (pron. *tah* and *ah*) at a convenient pitch and at a monotone; observing to attack each syllable at the instant the stroke of the pencil is made, and continuing each tone until the next is due.

Ex. 1. | TA TA | TA -A | TA TA | TA -A ||

A diagram of the time-names should now be constructed upon the blackboard, like that in the left-hand column in the margin. They should be written very legibly, and several inches apart, so as to be readily distinguished in any part of the room. The teacher now sings the first half of *Ex. 1*, at the same time pointing to the syllable sung at the instant; the strokes of the pointer upon the board being even-timed, and accented in the same way as the strokes of the pencil before described. The pupils immediately imitate, as the teacher continues pointing, but not singing with them. It will be an assistance if the pointer move near the syllable to be next struck, a little before the stroke is made. When the imitation is sufficiently exact, the whole exercise is taken at once. Then a somewhat quicker movement may be tried.

The next exercise commences with the weak part of the measure. For convenience, the end of the first half of each exercise is marked by an asterisk.

TA	6
-A	-
TATE	<u>66</u>
-ATE	<u>-6</u>
ta	0

Ex. 2. TA | TA -A | TA^{*} TA | TA -A | TA ||

This is to be pointed from the diagram on the board in the same manner as the last.

Next we have the accent for three-beat measure :

Ex. 2. | TA TA TA | TA -A TA | TA TA TA | TA -A -A ||

We now introduce TATE and -ATE (pron. *tah tay* and *ah tay*). In the use of time-names it is convenient to remember that no syllable except TA or -A is to be uttered at the instant of the stroke ; TE, as well as other syllabic forms introduced later, falls between the strokes. Commence by singing the first half of the lesson, using the pointer at the same time, as at Ex. 1.

Ex. 4. | TA TA | TATE TA | TATE TATE | TATE TA ||

Ex. 5. | TATE TA | TATE TA | TA TATE | TA -A ||

Ex. 6. TA | TA TATE | TA^{*} TATE | TA -A | TA ||

Ex. 7. | TA TATE | TA -ATE | TA -ATE | TATE TA ||

Ex. 8. | TATE TATE | TATE -ATE | TATE -ATE | TATE TA ||

The use of TATE is a little more difficult in three-beat than in two-beat measure.

Ex. 9. | TA TATE TATE | TA -A TA | TA TATE TATE | TA -A -A ||

Time passed in silence is less readily appreciated than that occupied by sounds. In order to enable pupils to think time in silence accurately, the syllable *ta* is used ; and it is to be spoken in a whisper.

Ex. 10. | TA *ta* | TA *ta* | TA TATE | TA *ta* ||

These ten exercises, if properly presented and used, will serve to give a practical idea of the use of time-names. The next step will be to read them from the numeral signs.

A figure, standing by itself, is read TA.

A dash, standing by itself, is read -A.

Two figures under a vinculum are read TATE.

A dash and a figure under a vinculum are read -ATE.

A zero, standing alone, is read *ta* (whispered).

The numeral signs may be placed in the diagram opposite the time-names, as in the right hand column.

The teacher now commences writing the above exercises in numerals upon the blackboard before the class. Ex. 1 will appear thus :

| 6 6 | 6 — | 6 6 | 6 — ||

After having sung it by time-names, it should be sung to the syllable

la, corresponding to the numeral. The continuation-vowel will be used the same as with time-names:

| *la la* | *la -a* | *la la* | *la -a* ||

This is sung at first as a separate syllable ; but the break is gradually made to disappear, and the second and fourth measures are filled with one unbroken sound, two pulses in length. The rest of the exercises are treated in like manner. After the rhythm of the exercises has been well defined, it is very necessary that the syllable *la* should be substituted for the time-names in order further to idealize the rhythm, and to secure the true results. But the associating power of the time-names must first be established.

FIRST STEPS IN DRAWING.

BY ISABEL WELCHMAN.

II.

Is it important to begin at an early age to teach a child to handle the pencil skillfully and correctly? Unless the child is assisted to do this at the outset, his fingers will take a cramped and awkward position, instead of developing a flexible, skillful hand, and will acquire habits that will be a hindrance to him as he advances in his course in later life. He can produce no artistic effects until he has overcome and broken up the bad habits of his childhood, which should never have been allowed to form.

Now, let us see what can be done to prevent the handling of the pencil with this tenacious and awkward grasp of his fist instead of with his careful little fingers. In the first place, the child should not use a *hard* pencil, or one with a fine point. Why? Because, if he does, he will be likely to use too much strength in marking with it and make a hard line, and cramp his little fingers in his work. We should give him a material so soft that it will break or crumble as soon as he bears down hard upon the paper. When he discovers that he can make a good black line without using much force, he will do his work with a lighter hand,—the very thing to be desired. Therefore I give my youngest "tots" either chalk for slate or blackboard, or charcoal for paper. In either case they need a holder to give them a long handle, at least five inches long. The pencil should be held by the fingers about an inch from the point where it touches the paper, or even farther, the pupil sitting erect at work

ing, so that his eye is not any nearer to the paper or drawing than is necessary to see clearly what is being done by the fingers. Also, the person drawing will see better the relations of all points of the object or picture to be drawn, by sitting erect and at some distance off; and will get more command of his instrument if it have a long handle rather than a short one. At the same time the position is better for the eyesight and general physique of the child.

The young child, should use a soft pencil, in order to acquire a delicate touch and a free use of the hand. An experienced teacher in visiting the schools of Europe, found that the children who wrote the finest and most beautiful hand were those who began on tablets of damp sand, using a little stick as a pencil. Each child had a flat tray of damp sand before him, and on this they performed all their examples in arithmetic, and learned to write upon it before they took pen and paper. The result was a freedom and ease of the hand and arm that gave them great facility to execute a capital as well as a small letter.

Children should not be required to draw anything very minute or exact at first. Let them have a chance to play, as it were, with their drawing-materials. At first they need something as a guide and measure to aid them in their efforts. What shall this be? Something simple and inexpensive in paper, as well as slate and blackboard, should be furnished to draw upon. The slates should be scratched for the child, on one side, into inch squares. On these lines, which will not rub out, a very young child of three or four years can, with a piece of chalk, make many little forms and pretty patterns. Let him trace these little lines, making them of various lengths from one inch to five or more, as the slate will allow, in a vertical direction, giving them the name of some familiar object he knows that lies or stands in that position. *Ex.*—A pin or pins, canes, posts, trees, poles, lamp-posts, etc.; place these in standing positions. Let him next trace the lines in a horizontal position from right to left, making them, as before, lines of one inch or more in order, up to five inches, if the slate will allow. By this he learns the *direction* of lines and their *relative length*. At the same time he is led to observe the position and length of *objects* about him, his eye is being cultivated in form, and his memory and imagination increased. He sees in his horizontal line sticks of wood, piles of boards, clothes-lines, telegraph-wires, little beds, or children lying in beds, etc. He will thus enjoy the exercise of making uninteresting straight lines that would otherwise be tedious to him. After making a slate full of drawings, let him draw around the inside edge of his slate and that will give him a frame for his sketches, and at the same time he can exercise his skill in making long, even lines. A child might draw in the same way on a tablet of sand.

LANGUAGE NUMBER LESSONS.

BY ANNA B. BADLAM.

IV.

Notwithstanding the value of objects in the study of Number, we must at times discard them, and test the child's conception of what he has been doing daily in Number by means of the various objects. Else he will become so dependent on the object that we shall find him, after a certain time, losing rather than gaining ground. Hence as soon as the children have acquired facility in the use of objects, with combinations to 10, add variety to the work by giving little examples for them to solve, as, "Mary, if you have 1 cent and I give you another, how many will you have?" "Bennie, if Mary has 2 cents and spends 1, how many will she have left?" "A little boy threw out crumbs to 2 little birds; by-and-by 2 more birds came: How many were there? After a while 1 little bird flew away: how many were left, Katie?"

This being a new step for the children,—they having used the objects up to this time, and any change being liable to confuse them,—a little care should be taken to use only those combinations with which they are most familiar; they will then be able to see the little mental pictures held before them. In this way we may test the child's conception of what he has already done with objects, discarding the use of them so far as the simpler combinations are concerned, but still carrying on the work with them, with the higher and more difficult ones.

Realizing the importance of making the little ones gradually and naturally independent of the object (as soon as it seemed practicable), I have been led to give the subject a good deal of attention, both in and out of the class-room.

My experience has taught me that we fail in getting good results in "abstract" Number by expecting too much of the child,—asking him to perform mentally what perhaps he is only just able to do with the object, one of two evils being the result,—the child forms the habit of guessing the answer, or using the fingers; while the class becomes wearied and inattentive in its turn; the brightest children, perhaps, doing the work, while the rest are too listless even to care when the correct answer is given.

What we need in every Number lesson are quick responses and close attention on the part of the children; but to get these we must not force them. When children have been working three or four months daily with objects, I think we may safely test them with such simple questions as, "1 apple and 1 apple;" "3 cherries were on the limb

and 1 fell to the ground ;" "4 boys were rolling hoop and 2 fell down." If they find no difficulty with this step, we may lead them on a little further.

Select from the "Alphabet of Number," the cards of the first series (1 to 10). There being 4 sets of them (printed in the colors red, blue, yellow, and green), enough cards may be found to furnish each child of a division with one.

In the first lesson, which should be made very simple, we may ask each child to look at his card, and tell of what he will think ; and going round the class in turn, we hear the answers, "I will think of 6 birds ;" "I am thinking of 4 boys ;" "I shall play I have 3 nuts ;" "I shall find 5 pins." Should a child not know his word, tell him, and the probability will be that he will not need to be told again. When each child understands just what his thought is to be, set before the class the teacher's card '1,' which may be easily read across the room. "Now, children, think of 1 more to put with the others, whether boys, nuts pins, mugs, caps," etc.

With very young children, at first we need not look for fuller responses than, "4 boys and 1 boy are 5 boys ;" "5 pins and 1 pin are 6 pins ;" "3 nuts and 1 nut are 4 nuts ;" "6 birds and 1 bird are 7 birds." And it is sufficient if they get the idea of putting your number with the several numbers, or taking your number from theirs. A pleasant variety to this would be to let one child ask his question of some child whom he shall choose. It being considered a great privilege to be called upon, all are anxious to give attention.

After a few lessons the words on the cards will have become familiar to the children, when we may then begin to develop their power of language.

A child tells us he saw "3 pins."

"Where ?"

"On the ground."

"Where did you see any more ?"

"I saw 1 more in the cushion."

Well, tell us, "I saw 3 pins on the ground and 1 in the cushion, then there were 4 in all ;" or, "I saw 3 pins in the cushion and I used 1 and left 2."

Jamie starts to tell us he saw "5 girls," but is at a loss to tell any more.

"What will you have them doing, children ?"

"Jumping rope," some one suggests ; so Jamie tells us, "5 little girls were jumping rope ; by-and-by 1 more joined them and there were 6 ;" or, "5 little girls were jumping-rope 1 went in the house, there were 4 left."

Minnie tells, "I had 3 nuts ; I cracked 1 and ate it, and had 2 left."

Whenever a child can use his own thought, let him ; if he appear at a loss, some one will be always ready to suggest, while we may from time to time throw out suggestions with regard to any word ; if of "birds," "let the cat come ;" "boys," "they like to play marbles ;" "rats," "set a trap ;" "lambs," "let some be playing, others eating."

Frequently,—for children like the possessive case, we will be told, "I have 6 sleds ;" or, "I have 5 caps ;" or, "7 boots," as the case may be. Suggest that "1 boy would not need so many sleds," "but think of a nice coast," and we may get the thought, "6 sleds were going down hill and 1 was at the foot." Suggest to the ambitious owner of the caps that he "keep a cap-store," or that he be a "cap-maker," to the owner of the "7 boots," that he "be a cobbler," or "boot-maker," or that he "be a dealer in boots and shoes."

Not only shall we find the children quick to respond, but we shall be surprised at the original and varied turns their minds will take. They seeming not to care to use the same story twice, or even to use a borrowed one.

Variety may be added by letting a child tell his story, asking the question, instead of giving the answer ; calling upon some child to repeat the question, in his own words, giving the answer.

In ways like this children really make their own questions ; while as the teacher's cards can be substituted, one for another at will, an infinite variety may be formed ; while the questions asked have this advantage over any which may be taken from arithmetics,—they are always new, varied, and of such a nature as will interest the children, being the product of their own thought.

When time is limited, or when a rapid review is desired, the children simply add the numbers on their own cards to the number on yours, giving the result ; or take the lesser number from the greater. Placing any card, as 2 or 4, before the whole class, when that has been used substitute another for it, etc. ; or place a different card for each row, to be used as before stated. Call row by row of children, who are sure, to stand ; send such as hesitate, or do not know, to the table ; by the time the former have recited the latter will be back in their seats ready to answer. Accustom the children to answer without hesitation, for if we neglect this, we fail in what should be our daily aim,—quick thought, and cheerful, undivided attention.

Again : each child of a division holding a card place before the class any number, as 4. Direct each child to think whether his number is larger or smaller than yours, and what number he must take away or add to his to have it equal yours. For example, we call on a row of children to stand.

"John?"

"My number is 7 ; it is larger than yours ; I must take 3 from 7 to leave 4."

"Mamie?"

"My number is 2 ; it is smaller than yours ; I add 2 to 2 to make 4."

Or, with the children giving attention, spread out on the table the teacher's cards, from 1 to 10 ; select any one, as 3, hold for a second before the class ; substitute another, as 7, with the direction "Put them together or add ;" or hold 10, substitute 6, with the direction, "Take away or subtract."

The object being quickness of sight as well as thought.



BOTANY FOR "LITTLE PEOPLE."

BY MARION.

II.

Having carefully considered the leaf, the scholars will be glad to pass on to the study of the flower, with its attractive colors. Select, from those that have been brought you by the pupils, one for the first lesson, of a simple character. Every one who mingles much with children knows how fond they are of "making things," whether on the slate, out of paper, or in the sand. Teach the pupils that the pretty flowers are formed of leaves ; notice their astonishment and the readiness with which they will give attention to your explanations. Then simply describe to them the modifications that take place. First, the calyx. As in the flower you have chosen, which may be green, they can easily see that a few leaves placed together, with the shape a little changed, will make quite a good calyx. Teach them this word, and encourage them to examine many flowers, and find the calyx in each. You may also give them the name "sepal" for each of the leaves that make up the calyx. In the corolla, of course, the leaves are still more modified, and the color is changed. Here again will be two new terms. Be sure that when the children draw the parts of the flowers they also add the names, as this will do much toward rendering the uncommon words familiar to them.

Perhaps some one of the pupils will exclaim, when you show them the stamens, "That is not a leaf!" Then you must teach them how the blade is inrolled to form the anther, while the petiole forms the

filament. It will be harder, but still possible, to make them understand the formation of the pistil, — the leaf rolled together to form the ovary, and the upper point prolonged into the style and stigma. They will be interested to know that the ovary contains the little bodies that will soon be seeds.

A list of the terms learned in this study may be placed on the board, and will be useful in reviews. It could be copied into blank-books if the pupils are old enough to write :

FLOWER.	
Calyx	{ sepals.
Corolla	{ petals.
Stamens	{ anther,—pollen.
	{ filament.
Pistil	{ stigma.
	{ style.
	{ ovary,—ovules.

Many may doubt the wisdom of teaching these botanical terms to very young children, but experience shows that it is true that these names are often an attraction to them, and certainly can be acquired with greater ease than if allowed to use their questionable forms of expression.

Having these points firmly established in the mind of each, you may suggest to them the structure of the flower. Indeed, it is likely that some one of the pupils has already noticed that sepals and petals are of the same number in the same plant. Let them trace this principle through many flowers. Thus, in a five-merous flower there would be five sepals, five petals, and five, or more often ten (two fives) stamens.

You may, if you study plants carefully with the children, lead them to see some of the principles of classification. For illustration, have them divide some plants into two groups, according to the venation of their leaves. If you then ask the students to find the plan of the flowers in these groups, they will quickly discover that those plants with parallel-veined leaves have flowers in threes, and those with netted-veined leaves, in twos, fours, or fives, but never in threes. This gives them some of the distinctions between monocotyledons and dicotyledons, and in a manner that will fix the fact on their minds, and serve as a preparation for the more thorough study of Botany when they are older.

It is to be hoped that out-of-door work may accompany the lessons, that the pupils may be taught to see many things that would otherwise be unnoticed. It will be a new thought to some of the class that trees as well as the smaller plants blossom, and that the familiar "pussy-willows" are true flowers. Many of the common names of the wild-flowers may be learned by means of these walks and talks with the pupils.

An exercise might be arranged somewhat in this manner :

Teacher.—What is this?

Scholar.—A violet •

T.—Let us see what we can learn about this flower.

(The children, accustomed to a systematic order in their lessons, will naturally follow that order.)

S.—It has a light-colored stem.

S.—The stem is easy to break.

T.—What else has this flower?

S.—It has a calyx, which is green.

S.—The calyx has five sepals.

S.—It has a corolla of five petals.

T.—Yes ; but you have not seen one just like this before.

S.—Some petals have queer little lines and hairs on them.

S.—They are blue almost all over, but white near the center of the flower.

S.—They are not all of the same shape ; one comes through the calyx at the bottom.

S.—There are five white stamens with yellow tops.

S.—I see the pistil, and the place where the seeds will be.

These are merely hints at the way you may review the general study of flowers, and by using a new specimen each day, sustain the interest among pupils. In this study the chief idea should be to teach the scholars to *observe* carefully, and learn to *describe* what they see with accuracy, in words or by drawings. Show their structure and form.

THE LITTLE BOY THAT KNEW.

BY L. J. B.

III.

JOHNNY'S MUSEUM.

Johnny opened another box for the children. It was about two feet long and a little more than one foot wide. Its cover had a cushion, so that it could be used for a seat when it was shut. In this box was a queer lot of things for a little boy to have for playthings. There were some joints and bones of small animals and birds, and the head and bones of a fish called a pike, with which Johnny showed the children how the joints of animals fit together and work. And there was a com-

plete skeleton of a fox-squirrel, which one of his cousins, who was studying in a college to be a doctor, had put together with little wires, and given to Johnny. He showed the children what curious, chisel-shaped teeth the squirrel has, with which he gnaws nut-shells open.

He showed the children the teeth of the pike, too. There are rows and rows of these teeth ; and they bend backward, so that when the pike catches a smaller fish, the small fish can't get loose ; he can go down the pike's big throat, because the teeth all bend that way ; but he can't go the other way at all, unless the teeth break. You would not believe one mouth could hold so many teeth ; you could hardly count them all. They were fine and sharp, like the points of pins.

The box had bits of iron ores of several different kinds ; and several kinds of copper ores and silver ores and lead ores and tin and zinc ; and bits of many sorts of stones, and shells ; and a bit of coal which had what looked like a picture of a leaf on it ; and a piece of limestone with marks on it showing where small sea-animals had been, and died years and years ago, when the stone was soft mud. And there were many other curious things of different sorts.

But the things which seemed most queer were the pieces of slag and metal-wood from the great furnaces which Johnny had visited ; and strange shavings of iron and brass, made by the great iron planers and lathes, in the factories which Johnny had visited ; and screws and little things of iron and steel and brass and copper and zinc ; and bits of glass and pottery of all sorts, with a lump of the clay from which each sort is made ; and scraps of leather and fur and felt, and many other things.

Most mothers, I am afraid, would call Johnny's lot of things rubbish or trumpery, and throw them into the ash-box, to be carted away. But Mrs. Bell called the box Johnny's museum ; and Johnny thought this box one of his nicest playthings.

At first most of the children did not see much fun in these things, but they asked Johnny about them ; and when Johnny told them about his visits to the big roaring furnaces, where he had seen little rivers of melted iron run out all over the great sand floor, in rows and rows of little ditches, when the men shoveled sand over them and let them cool into pig iron ; and about the rolling-mills, where strong men took great balls of hot iron out of ovens so hot you could hardly look into them, and run the balls through between big iron rollers, and then back again, and again, till they made red-hot iron rails, as long as your house ; and then a big buzz-saw sawed the hot iron into pieces, just as easy as sawing wood, and made the red sparks fly in a shower ; and how he saw, oh ! awful big shears cut great plates of iron just as easy as you cut paper ; and about the machines which make pins, and stick them in

rows on papers ; and how they draw wire ; and the big engine at the city water-works, as tall as a house, with pumps as big as a street car ; and about the boiling, melted copper in the furnace, and how the man stirred it with a big pole of queer wood to see if it was done, and then run it out like water in a great ladle, and poured it into moulds ; and about all sorts of work in wood, and how he saw them build ships and make furniture, and ever so many other things. Why, the children thought it all very nice, indeed. And I guess they must have teased their fathers and mothers, when they got home, to take them to see all these wonderful sights. I hope their parents did take them ; for I think it is one of the best ways in the world to teach children useful lessons, by letting them see how things are made, and by telling them all about it.

That was the way Johnny's father did. And Johnny was such a bright little fellow, that the workmen in almost every place he visited gave him something to carry home ; and that was the way he got his museum-box filled with all these curious things, and that is the way Johnny came to know about so many things.

But I have not had time to tell you half, nor a quarter, about all the things Johnny had seen and knew.

Mrs. Bell called the children to supper. It was a nice supper, and children behaved like little ladies and gentlemen. They liked it very much ; and they talked a great deal while they were eating.

While they are eating I will tell you a little more about Johnny, and his father and mother.

You must not suppose that Johnny is a brighter child than you are. He was only reading and writing in the First Reader. I dare say most of the children who read the *Wide Awake*, could read and write in the Second and Third Reader when they were six years old. Johnny liked to know things, but he did not like to study more than you do. He liked to play ; and he was a sturdy little fellow, running and jumping and making as much noise as any boy of his age you know of.

You must not think that Johnny had learned all that he knew, or had seen all that he had seen, in one year. He had been visiting the factories and shops ever since he was big enough to walk with his father. Before he could walk out-of-doors he liked to look at pictures. He saw his father draw pictures for him, and he wanted to draw. So his father and mother let him have a pencil and paper to play with ; and he made all sorts of lines and scrawls, which did not look like anything, but he called them pictures. By-and-by he began to make lines which looked a little more like something. When he got so that he could make a round or a square with his pencil, his mother said it was wonderful. And when he made a picture of a horse, which looked very

like a box with legs on it and a knob in front and a tail behind, his father and mother said it was a very remarkable drawing, indeed ; but they kept telling him he could do a little better next time. So he kept trying to do better.

When he was four years old Johnny was sent to the kindergarten three hours each day. The kindergarten teaches children to use their hands and their eyes, and Johnny soon became one of the best children at doing and making all sorts of things. He liked to do things, and he played a great deal in that way.

Johnny asked a great many questions about things, but I think his father and mother never said to him, "Go away, child ; I can't be bothered now." They often told him to find out for himself, but they always told him *how* he could find out for himself. His father told him many stories about animals, and liked to explain machines and other things to him, and let him play with bones and such tools as would not hurt him, and taught him to look closely at things he saw. And whenever his mother had a fish or a fowl for dinner, Johnny was allowed to look as much as he liked at its teeth and scales and fins and bones, or its feathers and toes and bill, and his father and mother told him all about it. And when he wanted to know where the pigeon's or the fish's ears were, they did not say "Pooh! child," but showed him all about it. And they let him draw pictures, while the cook was getting ready, and they showed how the fish's bladder worked and the chicken's heart and lungs and gizzard and crop ; and how its bones were different from the fish's bones.

The more Johnny learned about such things the more he liked to learn. I think most boys are the same way, though they do not all like to learn the same things. Boys and men learn something all the time, even when they are at play ; they cannot help it. Every new thing anybody sees or does teaches him something, even if he does not know he is being taught ; and so everybody goes on learning just as long as he lives,—only some learn more than others, because they see and do more, or pay better attention to the lessons they are all the time having. Some children do not like to go to school ; but everybody goes to some sort of school as long as he lives, though not always to a good school. Johnny's school was no better than almost any boy can have. It only cost his parents a little painstaking every day, and they think it teaches them almost as much as it does Johnny.

Although Johnny is only in the First Reader, he can write rather better than he can read, because he tried to write before he was sent to school, just as he tried to draw ; and he learned to read a little, too, from his animal story-books. He does not study arithmetic or geography ; but he has played so much with his toy money and scales, and

such things, that he knows the multiplication-table, and how to divide and add and subtract, though he does not know how to do any sums on the slate. And he knows a good deal about geography, from seeing maps with pictures on them of animals, and asking questions about them of his mother. Then he remembers and repeats the lessons he hears the older children recite. So he is now learning pretty fast, just from being in school and hearing and seeing what is said and done there. That is one way a habit of hearing and seeing and paying attention, will help any child to learn.

After supper the children sang two or three of their school songs, while Mrs. Bell played for them on the piano ; then they went home. And Harry Carr told his father all about the party, and said they all had a first-rate time. And he told his father so many things he had learned that Mr. Carr was surprised, and said he hoped Harry would play with Johnny often, and make a close friend of him. And he promised Harry to take him to visit some of the shops and factories, too, which pleased Harry greatly. And after Harry was put to bed, and was going to sleep, the last thing he heard was his papa and mamma talking of what he had told them about Johnny Bell's party.

VOCAL CULTURE IN PRIMARY SCHOOLS.

BY FRANK H. FENNO, ALTAY, N. Y.

Of course, elocution as a science or as an art, would be wholly out of place in the primary department, as would geology or geometry ; but a knowledge of this important branch is of great service to the primary teacher. The subject of voice-culture needs but little attention here, except as we use the pupils themselves as our instructors, for from them we may receive models worthy of imitation, in the way of pure tones and true natural expression. As a general thing, purity of tone is rare with the adult voice, while it is almost always found with the children. The healthful and exhilarating exercise which the voice receives at this early period of life gives a roundness and sweetness of tone quite refreshing to those in daily contact with voices which malformation, disease, misuse, or the action of debasing or exciting states of mind cannot fail to render harsh and discordant. There is a breezy freshness in the child's tone that bespeaks a free, tranquil mental state most conducive to purity of tone. Let us, then, not endeavor to teach them a correct tone, but copy from them.

There are instances, however, when the child's voice, by reason of some active cause, does not possess this clear, ringing quality, and in such cases it should be the aim of the teacher to so direct the voice that it will gradually return to its normal state. *To keep the child's voice pure* should be the teacher's constant care. Nothing affects the voice to a greater degree than the mental state. Physical suffering exerts a wonderful influence over the voice,—so does any disturbed condition of mind. Try to keep the pupils active, cheerful, and happy,—do this for the general health as well as for preserving the tone. The emotions are easily detected in the voice, and a boy addicted to the frequent exercise of anger, hate, petulance, or malice, slowly but surely fastens upon himself a tell-tale voice, which betrays his true character, giving to the tone an impure quality. Always strive to cultivate in your young pupils a spirit of confidence and independence. This will give stability, and destroy that feeble, shrinking utterance that we so often find, and which was allowed to develop itself during primary and intermediate school-days.

Again, see that cheerfulness always has a place in the school-room. If it exists in the heart, it will surely manifest itself in the voice, and a round, full, manly or womanly tone will be the certain result. In youth, the mind should never be overstrained or disturbed, the heart should be carefully guarded against all but the best and highest thoughts and feelings, and a marked improvement in the voice will certainly follow. Attention to these things in childhood will cling through life, and prevent the formation of unpleasant tones; for all impure qualities of voice are the natural result of disturbed and unworthy conditions of mind, if not from a malformation or improper use of the vocal organs.

Secondly, the *articulation* should receive special care. By frequent drill in the elementary sounds, the pupil's ear should be trained to quickly recognize any departure from a correct utterance. This, too, will serve to give a distinct enunciation to those whose natural expression is imperfect. Time cannot be spent to better advantage than in building up in your young pupils a pure, clear, pleasant voice, musical and distinct. In the school-room always encourage pupils to use their best voices in replying, especially when answers are given in concert. By shouting, as too many do when left to themselves in this regard, they soon acquire a rough, husky, unpleasant, guttural voice, that remains with them through life. Carefully guard against this, and let all your classes be voice-classes.

In reading, have pupils give *natural expression* to the thought, to express it exactly as they would if they had occasion to use the same words without a book. Teachers should always pay more attention than they do to expressive rather than mechanical reading. Teach

your pupils to feel what they read, and not merely to name the words, —to read not by *words*, but by *ideas*. This will make them effective readers, and the discipline thus received will tend toward making them original thinkers as well.

As soon as pupils can read with ease and facility, allow them to stand before the class and read pieces with which they are familiar. Make it a *privilege* to do this, and they will work hard for the honor. The next step will be to have them memorize selections and give in the same way,—then you have a class in *declamation*. Always add a few easy *gestures* to memorized pieces, and in all this work you will have built the foundation for a noble immortal structure. The consciousness of assisting largely in the moulding and developing of a perfect, symmetrical character, with originality to plan and confidence to perform, with added usefulness, will well repay you for the extra labor incurred in properly directing the little ones in your charge.



LET US STUDY THE CHILDREN.

BY MRS. R. R. BIRD.

STUDIES OF THE MIND.

VII.

“Not enough system!” you say? System! system! systems for children! Why, systems are not meant for children; they grow up to those gradually as they do to long dresses and beaver hats.

“Behold the example set us in Nature!” Does some one say, Look at the clouds: how they gather, how they disperse. Nature is full of irregularities. Yes; we know of the rising and setting of the sun, of the revolution of the earth around it, and the moon around the earth, — the solar system. But they are grown up. Who knows, but that in the grand Orrery of Nature, there may be little scintillations, off-shoots from parent-planets, twirling, twirling, whizzing, whirring, darting hither, hither, flaming, flashing, colliding, clashing, now bubbling over with satellitious joy, now bursting into little meteoric showers, then coalescing with other bodies, thus growing, gaining force and equal balance, until at last they find their orbits, and are discovered as new planets in the solar system?

So children at last find their orbits, — domestic, social, and educational. But, too soon comes the time when they will have done with

darting hither, thither, flaming, flashing, colliding, clashing. They are gradually aroused to the fact that there are other bodies in the domestic, social, and educational nebula, with which it is not convenient or best to collide; that it is for the harmonious working of the whole, that they accommodate themselves to circumstances, and find their orbits in the home and in society; — in the school, or rather in the great mass of little folks who are striving for an education, — the rudimentary stage having gone by in which they have gathered their facts together, and received impressions under the careful guidance of parents or teachers, or both, — it is found best for the convenience of all that there should be a comparing of respective abilities and attainments, a classification and arrangement into a system; that the children may pursue the subjects to which their peculiar bents incline, and receive a general training, intended to prepare them for happy and useful citizenship. The system should always be so pliable that it may bend to each individual, its needs, its bent, its life-purpose. It should be borne in mind that the same machinery cannot chisel the stone, work the iron, carve the wood, mould the clay, and weave the most delicate fabric.

The great majority of children are obliged to find their orbits, — their life-purpose, at an early age; they must supply their bodily wants. For such, the whole course of education should be directed toward that end. Happy they if, in their earlier days, they were allowed to study nature, — to drink in health and joy, while they gathered up bits of knowledge under the careful supervision of refined and intelligent teachers. It may happen that they have grasped only the elements of mathematics; but if those are well planted, form a firm foundation, they will be far better off, — will have clearer minds and quicker judgment — even if they have to use their arithmetic, as a book of reference like “Webster’s Unabridged,” to aid them in carrying out their life-purpose, — than if their immature minds had been stocked with mathematical principles they could not grasp, and their weak mental muscles had been strained by gymnastic exercises with mathematical dumb-bells too heavy for them to lift. Who knows but that it may heighten the tone of character of such, or to their lives add some poetry, that their attention was early drawn to the wisdom and love of Him who formed the beauty and symmetry of the gaily-dressed flowers, painted the bright spots on the butterflies’ wings, and sprinkled the heavens with the golden stars?

There are those whose circumstances allow them to dip into the ornamental, indulge in the luxuries in education, and increase the treasures of their minds. When such leave school to tread in the ordinary walks of life, to follow the learned professions, or search into the mysteries of science, still happier they that their opening minds were

fed with thoughts of the grasses, flowers, pebbles, and shells ; that they watched the butterfly emerge from a chrysalis, and from a tadpole evolve a frog. Indeed, who knows but that some young scientist, as he remembers that the tadpole's tail was not lost, but absorbed in the growth of the higher animal, may take comfort in finding a faint solution of the Darwinian theory in a tiny tadpole's tail?

PHYSIOLOGY FOR PRIMARY CLASS.

BY MRS. LOUISA P. HOPKINS.

V.

Teacher.—Madge, we went over the rope-works, yesterday, to see the machinery. What room did you think contained the most important part of it all?

Madge.—The room where the engine was, for that keeps it all going.

Teacher.—True ; and if the engine is taken good care of, and kept going just right, every wheel will do its work and all will go on as it should ; but if the engineer neglects his duty, or has not the skill to manage the engine, some bad accident or disorder might result. How nice the engine was ! and the room was quite clean, and the men there were busy and attending to their work. Now, all put your hands on your heads. Your head is your engine-room ; in it is the engine,—the brain. How solid the walls of the room are ! Where are the doors, and windows, and the belts which go to turn all the wheels, and keep your whole body-factory at work ?

Esther.—The eyes are the windows.

Prescott.—So are the ears.

Teacher.—Through the eye and the ear come to the brain the light and sound of what is outside the body ; through the nostrils and tongue, the smell and taste ; through the skin, the feeling. All these are called the “senses.” (Enlarge upon these *ad libitum*.) But how does the brain communicate with the rest of the body ? How does it get news of any hurt or any good to the rest of its body, or send any message to other parts of the body, such as a message to the arm to move, or to the feet to walk ?

Lottie.—You told us there were a thousand telegraphs to carry messages back and forth all over the body.

Teacher.—Yes, these are the nerves. The brain and the spinal-cord,

and the nerves are all one, like a root and stem and branches. All together they make up the nervous system. I went into a Surgical Museum once, and in a glass case I saw an exact representation of the nervous system of a man by itself, separated from all other parts of the body, as if it had been drawn out and hung on a hook by the brain ; down from the base of the brain behind hung the spinal-cord, and from it hung the principal nerves of the arms and legs, with all the hundreds of little thread-nerves running from every part of it. It was a curious-looking thing.

Teddy.—What color was it ?

Teacher.—If you could look inside your skull, your engine-room, you would find it packed quite close with soft gray coils and bunches. This gray mass is the brain ; it pushes substances down through all those little holes in the spine,—the middle of the vertebræ, you remember,—and sends out threads all over the body from between these little bones. The brain was the tool of the mind.

Ethel.—I thought the brain *is* the mind.

Teacher.—When your body dies, the brain will die, too. You could see a dead brain, of no more use ; but the mind is still alive, and I am sure must have a better tool or machine than the brain, although that is better and nicer than any made by man. Does this machine or engine ever get out of order ?

Maggie.—When a man is crazy, is it out of order ?

Teacher.—Yes, and do you not think that is almost the worst thing that could happen to us, that our mind should be out of order, as we say, when the mind cannot control the brain ?

Mabel.—O, yes ; for then we might kill ourselves or somebody else.

Teacher.—Sometimes the brain is hurt, or sick, and that is often fatal,—always very hard to cure. If a man falls and cracks his skull and knocks a piece of it against the brain, or wounds or inflames the brain ; or if he uses or excites the brain too much, so that it becomes too tired, it is a very serious matter, and very hard to cure ; but if it is the connection between the mind and the brain that is affected, then it is called insanity, and the man is like a workman in a factory whose engine is all out of order, and nothing can be relied upon ; his machinery may kill him, and everything may go contrary to the rule. Should you be careful of this engine ?

Prescott.—Very ; but how ?

Teacher.—Do what keeps the whole body healthful ; the brain is a part of the body ; also let the brain rest when it is tired. Let it work well and regularly when it works, and go to sleep when it is tired. When it is too tired to work, sleep comes like a night-watchman and shuts up the doors and windows, and the engine stands still. The

mind let's it alone and it gets rested. You saw the rope works' engine resting, and a man was oiling it and polishing it and getting it all in good order for work. That is what sleep does for the brain.

Gertrude.—How does the brain work?

Teacher.—I don't know that I can tell you. There is, probably, some movement of a particular part of it for every kind of work. Now, try to remember something. A certain part of the brain moves now, and you remember. Now try to understand something hard; another part of your brain works, and you understand. The action of any part of the brain strengthens that part, just as I explained that the exercise of a muscle strengthens that muscle. Make your mind do what is hard for it to do, and it will do that easier the next time; so you improve different parts of the brain and cause it to grow. You can even change the shape of your head by a habit of exercise for some part of the brain not well developed or strong. If you haven't much decision, form a habit of deciding questions certainly and positively, and your head will gradually grow higher here.

Carrie.—O, how funny! can I make my head different?

Teacher.—I do not promise that, but people who study much about it say that the mind uses different parts of the brain for different kinds of work, and shapes the brain and skull so as to show what parts are most developed, and what kinds of work the brain can do best, and I am sure as exercise trains the muscles, so it does the brain. Your mind will become weak if you do not use it, just as your muscles would. The will is the controlling force of the body, and the mind is the power that uses the will. The mind ought to govern and use the brain perfectly, and that is what I am trying to train your minds to do. The mind can control not only the brain, but the whole body, much more than you think, and keep it well and make it work well.

NOTE TO TEACHERS.—This subject can be developed much more fully, even to youngest pupils, and interests them very much. The organs of sense each form a lesson or more, and the distinction between the mind and the brain can be further dwelt upon, as they all understand how the brain may have an impression of sight or hearing, while the mind is too much occupied to attend to it; as a child absorbed in reading does not hear what is said, although the ear must still carry the sound to the brain. They will then know that the mind is quite distinct from the brain, and the soul can live without this body.

Lessons on the other vital organs will be continued hereafter, until the whole succession of lessons shall form a treatise of physiology for primary classes.

EDITORIAL.

PRIMARY TEACHER AND BARNES' EDUCATIONAL MONTHLY.

"IN UNION IS STRENGTH."

Our readers will note several important changes in this issue of the *PRIMARY TEACHER*, and a considerable increase in its size. These are due to the fact that *BARNES' EDUCATIONAL MONTHLY*, of New York, merges with the *PRIMARY TEACHER*, and we are thereby enabled to introduce certain excellent features of that very able and successful magazine into our consolidated publication. We hope by this union of the two papers to preserve and continue all that was excellent in each, and to give to our readers the results of the combination in talent, business enterprise, and in a greatly enlarged circulation. By this consolidation the *PRIMARY TEACHER* easily holds the first place among periodicals devoted to primary instruction, and all who have this important department in charge may expect a new impulse to be given to their work by the important movement herein begun. All subscribers to *BARNES' EDUCATIONAL MONTHLY* will receive the *PRIMARY TEACHER* to complete their subscriptions: and their efforts, with those of our subscribers, are cordially invited to aid us in extending the circulation of our magazine. Those who have not been hitherto subscribers to the *PRIMARY TEACHER* may not be aware that we issue only ten numbers in the year, — July and August being taken as a vacation. Subscribers to *BARNES' EDUCATIONAL MONTHLY* will have the time of their subscriptions extended two months, giving them their full complement of papers.

OVER-WORK FOR YOUNG PUPILS.

The dangers of over-burdening young children at this season of the year are many, and the subject is one that demands the careful attention of school officers, parents, and teachers. The unwise ambition of many parents, and the strong desire of many teachers to have their pupils take a high rank in their annual tests for promotion, often leads them, at the close of a school-year, to overlook the children's future welfare, and crowd their minds, not only with too much work during the hours of legitimate school-time, but often the temptation is very great to assign lessons for review, requiring home effort.

The influence of overwork upon the developing brain of the young is pernicious at all times, but is especially so with the first approach of the warm weather of spring and summer. The tendency to insanity and to the many evils of nervous over-excitement among the pupils in the public schools has already attracted the attention of many wise physicians and teachers, who are watchful of the physical well-being of the children of America. Those who have investigated the matter most fully, agree that the number of studies required in the modern public school is too large either for the best development of the mental powers of the young, or for the thorough acquirement of what is needed in the practical duties of life beyond the school-period.

The dangers are two-fold. One class of educators seem to aim to cram

their pupils with a smattering of almost every department of elementary knowledge, leaving the pupil neither time nor inclination to digest thoroughly any one important subject. Another class neglect all varied mental stimulants, and require the children to memorize "set" lessons from the textbooks, crowding their minds into the dark and cheerless corners with which the course of study "prescribed by the committee" abounds, without any oral help to guide them on their way.

Mental application, and even hard study, are healthful, but it must not be too long continued, nor should the changes be so frequent and rapid from one topic to another as to cause the bewilderment of the young mind. In visiting schools where the "oral instruction" fever is raging with undue violence, and the teachers, out of their previous comprehensive preparation for their work, are spreading daily feasts of good things before their excited young pupils, we often find that many of these pupils are affected mainly by the enthusiasm of the teacher, and moved to an unhealthy state of mental effervescence of a somewhat superficial character. All of these extremes of action in teaching should be avoided. Some well-defined oral instruction should be given, with a definite purpose, which will lead the child to investigate and reflect for itself; but it never should take the place of personal application on the part of the pupil. We demand, in behalf of the children of our common schools of America, such hygienic protection against the evils that threaten a generation as will save them to enjoy the blessings of sound minds in sound bodies.

PHYSICAL EXERCISE.

No more profitable investment of time and effort can be made in the lower grades of the public schools, than to devote a few moments every day to some simple exercise of a gymnastic or calisthenic character. Brief physical exercises, accompanied with lively games and songs, will interest the children, and secure increased mental activity and cheerfulness in their work. The object of such exercise is to afford pupils relaxation, and to secure good attitudes and carriage of the body. They should be performed with precision and uniformity. "All sudden or jerking movements should be avoided. The hands and arms, when extended from the body should be carried, as if bearing a heavy weight as far as possible, stretching every muscle to its utmost tension. Sitting, counting aloud, or singing, should not, as a general thing, be allowed while exercising." One of the chief advantages of these exercises is the opportunity they afford for the ventilation of the room while the pupils are active; at such times all the windows should be thrown wide open, for a minute, at the top. The doors should be closed.

THE SCHOOL OF LIFE.

Rev. William R. Alger, in his recent book entitled *The School of Life*, has presented some excellent suggestions in regard to the influences in life which educate. He makes use of the common figure and speaks of the world as a "vast school-house," and human life as a continuous pupilage; but says that the idea is so large, free, and beautiful that it infuses something of the enthusiasm of

the poet into the dryness of the work of the pedagogue, and should fire his mind with rich zeal. This view is one full of suggestion to the teacher engaged in the practical work of the school. He must not be a dull proser; he should carry with him the "Spring of Parnassus" in his breast, and diffuse a bright and cheerful spirit into all his labors. Wilkinson has said, "Education is nothing but an assimilative career." The true educator must so get control of the pupil that he can polish and refine his nature, and quicken his inspirations for higher spiritual attainments. Mr. Alger well says that "the experience, associated with the processes of instruction and training to which the rising generations of every civilized land are subjected in their most plastic and tenacious years, is so varied and keen and deep that all literature is full of imagery based upon it." There is no profession in life which requires so much study of the individual characteristics, or more skill in the application of principles through wise methods, than that of teaching.

CORRESPONDENCE.

DETAINING PUPILS AFTER SCHOOL.

To the Editor of the Primary Teacher :

Several of the teachers were interested in the remarks in "Our Notebook," for April, regarding detaining scholars after school for failures in lessons; and we desire to ask a few questions, hoping that some *practical, experienced* teacher will reply.

In primary schools studying geography, arithmetic, etc., down to the First Reader grade, ought not failures to be corrected, whether they are in oral or in written work? If so, when can it be done if the course prescribed by the Board of Education requires so much that nearly every moment is full during school-hours; *vis.*, from 9.00 to 11.45 a. m., and from 1.00 to 3.15 p. m.? (This includes thirty minutes recess, and thirty minutes less time for the little ones of the lowest grade.) While we do not sympathize with one who cannot secure correct lessons without keeping "nearly one-half her class," for "nearly an hour," and that often repeated, we do not see how, in the above case, we can dispense with remaining from fifteen minutes to three-quarters of an hour each day, unless the duller pupils fall behind their classes, or receive some far more severe punishment than slight detention. Is not depriving them of their recess, far worse? Is it not better, too, than corporal punishment for slight offences, which are the result of carelessness, but which must in some manner be corrected if an approximation to perfect order be secured? We are in earnest in our work and will be thankful for all the light you can give, providing it is not mere theory. B.

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TALKS AMONG TEACHERS.

VACATION.

The last day of the school-year had come and gone, the exercises for the day were over, and the "door that shutteth and no man openeth" was closed; the record which had been daily kept was rolled up, to remain thus until the "great day." Some of the teachers of the "Shawmut" School had gathered themselves together in Miss Walker's room, to say "good-bye," and to "talk a little" about vacation. All who were there at the close of last year were not present now. "How quickly the year has slipped by!" remarked Miss Walker; "it does not seem as though it can be that a *whole* year has gone since that memorable evening, when we disclosed to each other our plans for the coming vacation; I thought *then* we should meet often, and have many pleasant 'chats' about our daily work, and, perhaps about our recreations; but really with me, '*Tempus fugit*' (as we school-girls used to say), so fast, that I have found very little time for recreation. How has it been with you, Miss Croaker? You must have much less care than we of the lower rooms, as you, have the Master and Sub-master, to take the entire government from your shoulders, while you only hear *good and perfect* recitations. What are your plans for rest, comfort, and enjoyment, during the coming vacation?"

Miss Croaker.—"Oh, I do not know yet about the vacation. I never plan much for that; indeed, I am so tired of this never-ceasing drudgery of teaching, that my only desire is to get away from it entirely, or at least to change my position. I think a graded school very tiresome. I intend to look about for a situation in a *private school*, where I should have more *variety*; you know all the change I have had for years has been in the new classes that come up each year, and these do not always add to our comfort, or bring to us a change that is in our favor. I presume my vacation will be spent much as it was last year, trying to rest. I hope, however, all the others of us teachers will be able to enjoy a *great deal* of pleasure."

Miss Walker.—"I do not feel disposed to find any fault with my position as a teacher. I was very happy to receive the appointment, and I intend to remain here as long as I can. I have some renewed enjoyment every day in teaching, even though it may be the same classes, and the same studies. I always regret the parting with my boys when they go up higher. But now about vacation: When we separated last year it was proposed that we meet on our return, and report; but I believe no such meeting has been held. I have not seen Miss Artless from that day to this; it is unfortunate for her that her school-room is so remote from here as to give her so little opportunity to become acquainted, even with us."

Miss Jameson.—"I have met her several times within the last three months, but she has had such a sad look I have been fearing she was having some trouble in her school, but she did not mention anything of the kind; indeed, I have not much more than exchanged greetings with her. As for our vacation of last year, I was amply repaid for all the expense and labor

incident to my journey, and I can truly say that both by sea and land, it was a complete joy to me; and I expect this coming season to spend much of my time in recounting its enjoyment to my friends, as I have had no opportunity to do so since my return. I shall live it all over with the aid of my memory and my voluminous 'journal;' and I will add here, 'The vacation trips, long may they wave!'"

Miss Croaker.—"I know those trips are all very pleasant to hear about, and we know how Miss Goldwin came out of hers; she went away with 'Cousin Harry,' as she called him (although he was no cousin at all), and came back Mrs. Harry Chester; no more school-teaching for her."

Miss Wise.—"Well, let us all hope that she will be happy in her new life; she was a faithful teacher, and I have no doubt will be faithful in whatever position she is called to occupy. As for my vacation of last year, it was spent mostly at home in a quiet way, and I presume will be varied this season only by a day or two at the sea-side. I do not think I am so much in need of rest as some teachers are; I have perfect health, and am not so very weary at the close of each year. Miss Newton, where do you go? I believe you was at Nantasket last year."

Miss Newton.—"I was there, and enjoyed it all so much! Why, sleeping or waking, there was rest and pleasure for me; and I came back so refreshed. I have felt the influence of it all the time during the past year. But the coming vacation I expect to spend in the woods. I am hoping to go to St. Albans, to attend the 'American Institute.' I shall go from there across the beautiful Champlain, and penetrate the Adirondack region as far as possible, and there I hope to find the same rest and enjoyment, equal if not greater than my last year brought me. I sometimes think that our enjoyment of vacation lies with each one of us,—a happy thankful heart, will insure us all we need."

Miss Croaker.—"I do not know about that. For one I think some places are preferable to others; yet I never could find much that was desirable in a vacation trip. I always kept thinking of the 'hard past and the hard future,' as some one has written. Has any one seen Miss Pynchem, of late?"

Miss Newton.—"I called upon her not long since, and found her still in the dark, although she told me her physician had assured her she should soon come out into the light, as her eyes were gaining now; and she hopes to be able to be in school again before long; she, however, assured me she should never spend another vacation at work upon 'Applique' work. Experience is a hard teacher sometimes, but an effective one."

Miss Croaker.—"I think so; and we all need to take warning from Miss Pynchem not to use our eyes too severely during vacation. But here is Miss Artless, whom we are all glad to meet; but now let us first hear from Miss Selwin. What are your plans for the coming vacation?"

Miss Selwin.—"Oh, I spend my vacations quietly at home with my parents and sisters; we drift with the tide in our plans,—sometimes going for a few days to the sea, and sometimes a little trip to the mountains; and we have a good time wherever we go. I do not need much rest; I am never so tired as some teachers are; my school-duties are all pleasant. I think the 'system' of our schools is its greatest blessing to teachers; we are so helped by our excellent supervisors, that,—well, I find my work a great deal lightened by it. No *monotony* for me in my pleasant school-room."

Miss Croaker.—"I am tired of the word *system*. It wearies me to think of it. Miss Artless, how has it been with you since last year's vacation? Indeed, I believe you was the one who proposed that we meet and report on our return from vacation; shall we hear your report now?"

Miss Artless raised her drooping head, and burst into a flood of tears, to the surprise of all; but she soon recovered herself, and resumed her usual sweetness of manner.

"When we parted last year (said she), my anticipations were very bright, and were all fully realized in the pleasant vacation-visit at home. The remembrance of the meeting with the loved ones, and of its surprises, are very sweet to me. My sister was as happy as a bird, with her beautiful piano, and the enjoyment it gave to all at home was sufficient pleasure to me, to counterbalance all the sacrifices I had made for their sakes. Indeed, my cup of happiness was filled to the brim, and the weeks sped on, each day bringing me nearer to my school and its loved duties; and when the good-byes had been said, and a last look given to home scenes, I came back to the loved ones here in my school-room, rested and refreshed; and although each day brought labor, and each evening weariness, yet the morning brought rest. And the weekly letters from home, which never failed, were such a comfort, I was very happy.

The autumn passed, and winter came with its festive days, Christmas and New Year's; and although on those days my heart went out to the dear home, yet I had many pleasant remembrances here from pupils and friends, making my life one of pleasant, happy labor. The winter was over and gone, the frosts and cold winds, the short days and long, busy evenings were past, and spring was here, with its green grass and early flowers, and 'Easter-tide' was approaching, when I received a hasty letter from dear grandmother, telling me that Bessie was sick. The next mail brought another from the same hand, containing these words: 'Your sunny-browed sister is an angel in heaven. You cannot be sent for, on account of the contagious nature of the disease,—diphtheria. Bessie's last words were to you, and I have treasured them all up for you when you return in vacation.'

And now, instead of the fullness of joy I had last year in going home, I have this great burden of sorrow. Yet I have many alleviations; after the sad news, I was relieved from school duties for one week, Miss Emmons taking my place; and when I returned to school, little hand-clasps welcomed me, and many a tearful blue eye reminded me of Bessie, who was 'sleeping'; one little girl, who wished to comfort me, printed, very neatly, on an Easter-card, "She has risen," and gave it to me the following morning. It did comfort me; I seemed to see Bessie, not in the dark grave, as she had been appearing to me to be, but with robes all made white in the blood of Jesus, with Him on that blessed Easter morning! And I felt so thankful that my position as a teacher was with the little ones, who 'do always behold the face of their Father.' I love to know that I am permitted to write some of the first lessons on the fair page of their school life; so I daily told them little incidents in the life of my angel sister; and as the time passed, a spirit of love and forbearance was being developed among them, and I was causing the lips of Bessie, 'who was asleep, to speak.'

I shall go home with less sadness in my heart because I leave so many sympathizing friends among the little ones, members of my school; and although I shall miss and mourn for Bessie, I can wait for the reunion 'until the day break, and the shadows flee away."

The teachers separated with a subdued and tearful good-bye, 'till we meet again,' Miss Wise whispering to Miss Croaker, 'Blessed are they that mourn, for they shall be comforted.' "

STELLA.

ABOUT VACATION.

TALKS WITH PUPILS.

"Cry holiday! holiday! let us be gay,
And share in the rapture of heaven and earth!"

I see in your faces the bright anticipation of vacation; I hear it in the jubilant ring of your voices, which fills the very name with music; I hear all Nature, with her myriad voices, calling you; and, catching the longing of your spirits and the earnest of her persuasive call, I cannot stop to review the treasured memories of our working-time, nor say how much I shall miss the coming of your feet, and the daily cheer of your loving hearts and bright faces. Rather, let me bid you good-speed to all the joys of the coveted time, and fill my parting words with helpful suggestions, which, being followed, may add improvement to your pleasure.

First, be careful to pack away all your school-books, where you can find them in September; but keep with you your note-books and pencils for daily use, and *be sure to use them*. And now go forth, lovingly, into the great wonder-world and follow our Agassiz,

"Who wandered away and away
With Nature, the dear old nurse,
Who sang to him, night and day,
The rhymes of the universe;

and find, as he found,—

"That, whenever the way seemed long,
Or his heart was beginning to fail,
She would sing a more wonderful song
Or tell a more wonderful tale."

His own words, freighted with the rich experience of his life-work, are my best counsel to you: "Observe," "Examine," "Compare," "Note down." All days, of course, will not be sunshine; and, full of quick appreciation of a lesson oft-repeated during my childhood,—“Prepare for the rainy day,”—I will help you, first, to get ready for that. Ask your parents to buy for you the book entitled *Dame Nature and Her Three Daughters*. I can almost see you now, reading or listening to grandpa's stories about the three sisters,—“Mineralia, Vegetalia, and Animalia,”—after which I seem to see you form a circle and play the “Guessing Game” with more delight than ever before.

Perhaps this will not last for all the rainy days, but if you use this well a second appeal may give you *The Fairy Land of Science*, which will tell you wonderful stories of real fairies, whose works will astonish you. A third request may give you *Life and Her Children*, after the reading of which, I venture, that I do not think you will wait for the sun to shine before you search for some of the “Children.”

Remembering your interest in the *Story of Our Country*, and your desire to place your feet on some of its sacred places, and to weigh the principles upon which its present welfare is based, I would suggest that, on

some very sunny day, you visit a *true republic*, where every one, though independent in every way, is mindful of the rights of each and all, and works constantly, patiently, and laboriously for the good of all. Notice the curious houses, with their thousands of rooms, all built according to *different models*, as each builder may find most convenient, and occupied by many thousands of law-abiding inmates, who communicate with each other, and live and work in perfect harmony and with great results. Watch them carefully, and perhaps you will learn what the wise king meant when he said, "Go to the ant;" . . . consider her ways and be wise."

Again, would you visit an *ideal kingdom*, densely populated, and see houses built according to a *regular model*, tier upon tier, and royal palaces at the corners of the streets, and all well governed by a wise little queen who works with her subjects from sunrise to sunset, and obeys the same laws that she has made for her people, allowing not the least disorder or confusion. Such is the *Bee Kingdom*; and, observing still farther, you can watch the bee in the mission of help to the flowers. You may notice the flowers, also, and see how invitingly some prepare the way for the bee by painting an entrance-passage for her, and by breathing out an enticing fragrance, which shall secure the welcome visit to the honeyed store. How mutually helpful they are! As you note them critically, you will understand my meaning when I say, as "busy as a bee," or the "bee-line" of duty. Possibly the truth will dawn upon you, from this mutual helpfulness shown by bees and flowers, that beauty and loveliness come always from mutual struggle and striving when warmed by the sweet influence of unselfish love.

TALKS WITH TEACHERS.

A word to you, devoted teachers, whose faithful service is written in letters of life. Upon yourselves I see the *need of change*, and I hear the voiceless *appeal for rest*. You, too, must *lay aside your books* and give yourselves wholly into the arms of Mother Nature, who has an immense store of good things for you, physically, mentally, and morally, if you will go to her with the trusting obedience of a loving child. You may wander at will in her beautiful gardens, and be lulled to sleep by the music of her feathered choir,—

"Whose songs in many keys are
Sweeter than instrument of man e'er caught."

She will give you the "oil of joy for the spirit of heaviness," and, taking you to her great heart, she will make you strong to feel the wisdom and the love of the Great Teacher, whose object-lessons for the redemption of the world were drawn from her great storehouse. You, also, following Agassiz, will learn that, in "seeing you will perceive," and that in "hearing you will understand." The music of our June bird will be "gladness on wings,"—"all joy and sunshine"; and you will hear it, "run down, a brook of laughter thru' the air."

Lie down in the cool shade, by the murmuring brook, and as you listen to the various sounds you will cease to wonder that any one whose ear is attuned to all these melodies should try to annote the music of Niagara, or seek to find the "missing chord" in the grand harmony of Nature. In the soothing and strengthening rest of this lying down, I may hear you softly whispering,—

"O, this is peace; I have no need
Of friend to talk, or book to read;

A dear Companion here abides;
Close to my thrilling heart He hides;
The holy silence is His voice:
I lie and listen and rejoice."

After such a vacation you will re-

turn to your work with fresh vigor
and renewed courage, and the children
will catch the enthusiasm of your new
inspiration.

OUR NOTE - BOOK.

THE present number closes the *fourth* volume of the PRIMARY TEACHER. The past year has been one of unusual interest to those engaged in primary instruction, and our constant aim has been to present to the teachers of this grade correct principles, and the best methods of mental discipline and school management. The primary teacher of to-day occupies a position second to none in the profession, and needs the inspirations and motives, the encouragement and coöperation, the aids and experience that come from a profound study of their work, and a full consciousness of the influence they exert upon the minds and hearts of those placed under their training. Our constant endeavor has been to furnish *practical* methods for doing the best quality of work in the most expeditious and thorough manner, and in accordance with the true philosophy of correct teaching.

THE PRIMARY TEACHER will not be issued in July or August, ten numbers constituting the volume. Bound volumes of Volume IV. will be ready by the first of July. Price, \$1.25. Address New-England Publishing Co., 16 Hawley street, Boston.

BILLS will be found in this number for those who have not yet paid their subscriptions. A prompt remittance will make all concerned happy.

THE first number of Volume V. will be issued September 1, and our corps

of contributors will be increased, and new features introduced, which we sincerely hope will make THE TEACHER even more serviceable than it has been in the past.

"HELEN ERWINE," in the *Boston Transcript*, furnishes the following little poem, which contains much sound advice, especially good for teachers:

Do the best you can with life;
Scorn the wrong and nobly dare
To advance the true, the right:
In life's warfare take your share.

Put some music in your life;
Never say the world is cold!
Hearts are warm and true and brave,
And will be till time is old.

Strive to keep the heart in tune,
Ready for the Master's hand,
For life's sweetest harmonies
Will not come at your command.

Labor brings a rich reward,
Though it may not give you fame;
Is contentment, peace, repose,
Folded in a sounding name?

Do the work that lies at hand;
Life is made of little deeds.
Would you reap a harvest fair,
Day and evening drop the seeds.

PRESIDENT LE CONTE, of the University of California, in speaking of the qualifications of teachers for primary instruction, says:

"It is a fundamental error to assume that no great degree of knowledge or skill is required to educate pupils in the primary schools. More accurate knowledge and high culture is required to properly educate the youth of tender years than to instruct the more mature, just as it requires a more profound

acquaintance with any subject, to write an elementary work than to prepare a merely technical book. This is admitted by the profoundest philosophers of the age; and it is evident that the proper guidance of the dawns of human intelligence, the beginnings of moral development, and the establishment of the foundations of character require the maturest discrimination, the highest culture, and the purest and noblest inspirations of humanity."

THE following suggestions will indicate to the teacher the methods by which the power of attention can be cultivated:

Have pupils observe objects closely. Require them always to study with close attention.

Read long sentences and have pupils write them.

Read quite long combinations in mental arithmetic and have pupils repeat them.

Watching disorderly pupils is most damaging. The entire attention of the teacher is due to the class reciting.

IF vexed with a child when instructing it, try to write with your left hand. Remember, a child is all left-hand.—*J. F. Boyes.*

IF a student convince you that you are wrong and he is right, acknowledge it cheerfully and,—hug him.—*Emerson.*

THE following has been sent to us, taken from a Teacher's Note-Book:

They that govern most make the least noise.

The teacher who has not complete self-control cannot govern others.

The shortest and surest method of imparting instruction is by plain statement and frequent repetition.

The thorough teacher's motto: "Not have much, but have well."

It is not what we read, but what we remember, that makes us learned.

Want of words to express implies want of thoughts to be expressed.

When a child knows a lesson, and *knows* that he knows it, he has mastered it.

"CAST THY BREAD UPON THE WATERS."

I've a dream of early morning,
And a school-room, worn and old,
Through the broken window-lattice
Sunbeams dancing light and bold.
Eager faces group around me;
Oh, how innocent and bright!
For vacation looms before them
Crowned with fairy-land delight,
Tis the last of many mornings
They will all assemble here;
Eagerly they sing the carols
They have sung through all the year.
But, ere long, each face grows tender,
Voices ring with earnest power,
As it were, they felt the pathos
Of the last, sweet morning-hour.

I've a dream of gladsome noon-day,
Blossoms glowing everywhere;
All my desk is covered with them,
Childish hands have placed them there.

Children cluster close around me,
Beautiful as flowers themselves
In their dainty Sunday dresses,
Blessings on the bright-eyed elves.
Now there comes a noise, a jostle,
As with bashful, joyous face,
Little tokens of affection
Boyish hands before me place.
Do you think it strange and foolish
That my thanks 'tis hard to speak,
That with love my heart is throbbing,
And a tear is on my cheek?

I've a dream of ev'ning shadows
Lengthening upon the sill,
And the voices of the children
Singing sweetly, haunt me still.
Now our pleasant day is ending,
Soon will ev'ning shadows fall,
Soon our voices, sadly blending,
Needs must sing farewell to all.
Sweet it is, the thought of meeting
Loved ones on the golden strand,
Schoolmates, teachers, gladly greeting

In the far-off, better land."
 Louder, sweeter swells the music,
 Then it softly dies away,
 Like the birds at quiet ev'ning
 Singing out the dying day.
 Now again I feel the pressure
 Of their little hands in mine;
 Now again I kiss them fondly,
 And their arms my neck entwine.
 They are gone, and I am lonely,
 Though my hard year's work is done;
 For I feel my loving labor
 All is gone,—and what is won?
 I've a dream of midnight stillness,
 And a voice that said to me,
 "Cast thy bread upon the waters,
 It will sure return to thee
 After many days are numbered
 With the years in God's right hand."
 And, behold! I see a vision

Of the blessed Promised Land,
 And in fancy I am wafted
 Gently to the farther shore,
 And I see the children clustered
 Close around the golden door;
 Every little one is present,
 Clad in garments pure and fair,
 And the hymns that I have taught
 them
 Ring out gladly on the air.
 Soon they vanish. It is midnight,
 Darkness hovers round my bed;
 But I seem to hear the music,
 And the sweet, low voice that said:
 "Sow thy seed; thou shalt behold it
 Blooming in the Better Land."
 And, content, I leave my labor
 Folded in the Father's hand.
 HELEN E. HOLEYWELL.
Mansfield, O., 1881.

OBJECT - TEACHING.

OBJECT-AIDS FOR TEACHING COLOR, FORMS, NUMBERS.

Any one who has heart and brain, experience and common-sense enough to invent anything that will attract and interest, while at the same time it instructs the children during their first year in school, is a public benefactor, and deserves our gratitude and encouragement.

Mrs. Putnam, in supplying the needs of her own school, has produced a device at once so simple and convenient, so portable and noiseless, so attractive in form and color, so inexhaustible in its combinations, that we verily believe she is entitled to the gratitude of every teacher of little children.

Her invention consists of a flat piece of wood in the form of a sole of a shoe. On this are painted the tri-

angle, square, oblong, and circle, in white, yellow, red, and blue, while around the edge is a line of black; these are perforated with holes,—three hundred in all. In the box that contains the sole are enough pegs colored to match. The teaching of the simple primary colors she wisely leaves to the judgment of the teacher.

For teaching numbers the following is a specimen representative lesson for young pupils:

SAMPLE LESSON.

Find the oblong on the sole. Place a yellow peg in the center hole. Place two pegs on the left of it, and two pegs on the right of it. How many pegs are on the oblong? Remove the middle peg to the right-hand side of the pegs. How many pegs? How many *groups* of pegs? How many in each group?

Test the accuracy of the mind-picture, and then the child may write:

$$\begin{array}{r} 1+1+1+1+1=5 \\ 2+3=5 \\ 3+2=5 \\ 5-2=3 \\ 5-3=2 \end{array}$$

The child may remove another peg from the left-hand side to the right-hand side, and examine groups as before. Slate work:

$$\begin{array}{r} 1+4=5 \quad 4+1=5 \\ 5-1=4 \quad 5-4=1 \end{array}$$

The child may then group by 2's, etc., till all possible combinations are obtained and made fast in his mind.

The diagonal of the oblong furnishes holes for pegging the combinations of the numbers from one to ten.

To show all these combinations at once, use the black band around the edge of, the sole, in which may be found one hundred holes.

Each child may take the sole and make all possible combinations which can make the number six.

Place six pegs at the toe of the sole; leave three holes before beginning the next six; leave one hole between each two groups of pegs forming the six. We shall have,

On sole: I. I. I. I. I. I. . . . III. III. . . . II. II. . . . II. III. I. . . . III. II. . . .

On slate:

$$\begin{array}{r} 1+1+1+1+1=6 \\ 3+3=6 \quad 2 \times 3=6 \\ 2+2+2=6 \quad 3 \times 2=6 \\ 2+3+1=6 \quad 6 \div 3=2 \\ 4+2=6 \quad 6 \div 2=3 \end{array}$$

Each child may hold a sole, use the black band, form with pegs the multiplication or division-table, and write it by signs on his slate.

A class of ten will find it better to use the triangle (each one holding a sole), which is made with holes from one to ten for that purpose.

SUGGESTIVE LESSON.

Each child places three pegs in the line of three holes. First child passes to next with, "I have three pegs, which I give to (next) Ella."

Ella. — "I have three pegs and three pegs, or two groups of three pegs, which I pass to Anna." Continue till the additions by 3's are made to thirty.

When this is clear to the child's mind, subtract in the same way till the number thirty is made plain by every possible arrangement of its units, and the slate-work will express:

$$\begin{array}{r} 3+3+3+3+3+3+3+3+3=30 \\ 10 \times 3=30 \quad 30 \div 3=10 \end{array}$$

The soles may be gently tapped together as the additions go to make the *times* in the *multiplication*, which gives an added pleasure to the child, and makes the learning of those dreaded "Tables" of the olden times the pleasure-game of to-day.

Within the circle are holes for the game of Solitaire and Fox and Geese.

From this interesting and instructive lesson it will be seen that the "Object Aids" are a valuable help to teachers of the lower grade of primary-school work. Full particulars as to their numerous uses can be obtained by addressing Mrs. B. W. Putnam, Jamaica Plain, Mass.

A NUMBER EXERCISE.

DEVELOP THE IDEA OF FOUR.

Let the pupils clap four times, hold up four fingers, etc. Let them play with pasteboard squares in bright colors, and draw squares, and other four-sided figures,—some of them of a definite size, as a foot, a half, or a third of a foot on a side,—on slate or blackboard.

Teach how to make the figure 4.

FREE GYMNASTICS.

AN EXERCISE.

1. *Position* : Sit erect; eyes steadily in front; shoulders thrown back; arms hanging by the side; feet in front; heels four inches apart; toes turning out, forming with each other an angle of 25°.
2. Arms folded.
3. Hands clasped and resting on edge of desk.
4. Right hand thrown horizontally in front.
5. Left hand same as right in No. 4.
6. Strike hands together in front, five times.
7. Right hand on head.
8. Both hands on head.
9. Strike hands together five times over head.
10. Fingers resting on top of shoulders.
11. Strike hands together five times in front.
12. Hands on top of head.
13. Strike hands together five times over head.
14. Hands twirling over head.
15. Hands brought suddenly to desk with noise.
16. Arms folded.
17. Fingers resting on top of shoulders.
18. Hands on top of head.
19. Strike hands together five times over head.
20. Fingers twirling rapidly over head.
21. Hands brought to desk, softly tapping with tips of fingers in imitation of rain.

Remark.—The force of the storm may be graduated by signals from the teacher. The pupils may at the same time whistle in imitation of wind. Two or three of the pupils may be designated to strike heavily on their desks with the fists, at intervals, imitating thunder.

22. Fold arms, sitting perfectly still.

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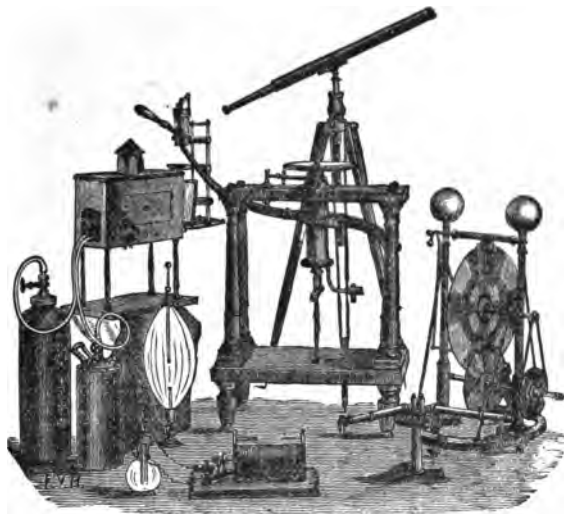
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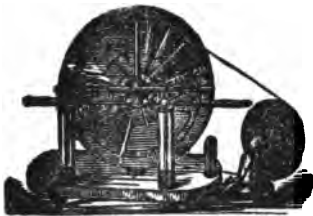
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